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WAR-TIME OPERATION AND MAINTENANCE MANUAL

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COMMERCIAL CAR JOURNAL

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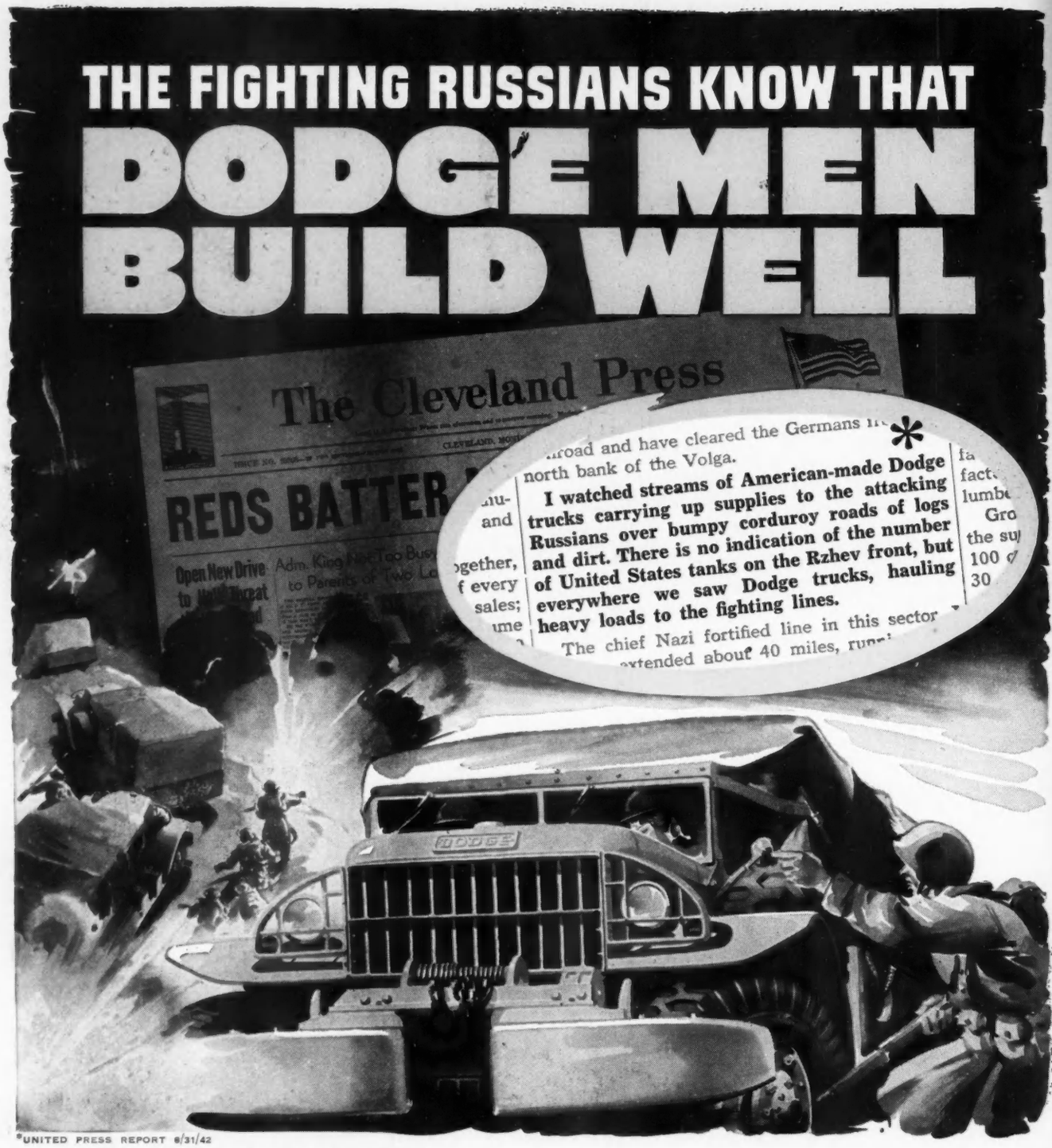
The Cleveland Press
REDS BATTER
Open New Drive
Adm. King Not Too Busy
to Parents of Two La
road and have cleared the Germans
north bank of the Volga.
I watched streams of American-made Dodge trucks carrying up supplies to the attacking Russians over bumpy corduroy roads of logs and dirt. There is no indication of the number of United States tanks on the Rzhev front, but everywhere we saw Dodge trucks, hauling heavy loads to the fighting lines.
The chief Nazi fortified line in this sector
extended about 40 miles,
DODGE

*UNITED PRESS REPORT 8/31/42

War Products of Chrysler Corporation, in which Dodge "Job-Rated" quality and craftsmanship have an important part, include: Dodge Command Reconnaissance and Field Radio vehicles . . . Dodge Troop and Cargo Motor Trucks . . . Dodge Weapons Carriers . . . Dodge Army Carryalls and Ambulances . . . Medium Tanks . . . Bomber Fuselage Sections . . . Antiaircraft Cannon . . . Airplane, Tank, and Marine Engines . . . Gyro-compasses . . . Shells and Projectiles . . . Air Raid Sirens . . . Field Kitchens, and many others.

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COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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EDITORIAL CONTENTS

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This special issue—Commercial Car Journal's 1942 War-Time Operation & Maintenance Manual—consists of Three Sections, each of which has its own Index.

Special Index to Section One 25

Special Index to Section Two 37

Special Index to Section Three 63

DEPARTMENTS

CCJ Motor Truck Component Parts Specifications Table 47

Free Publications 56

New Products 57

CCJ Quiz 252

Advertisers' Index 262-264

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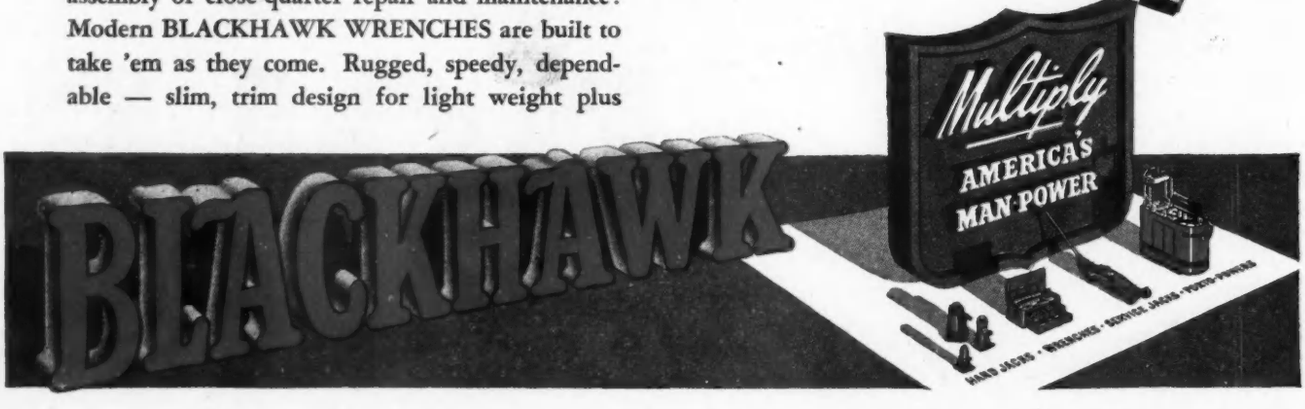

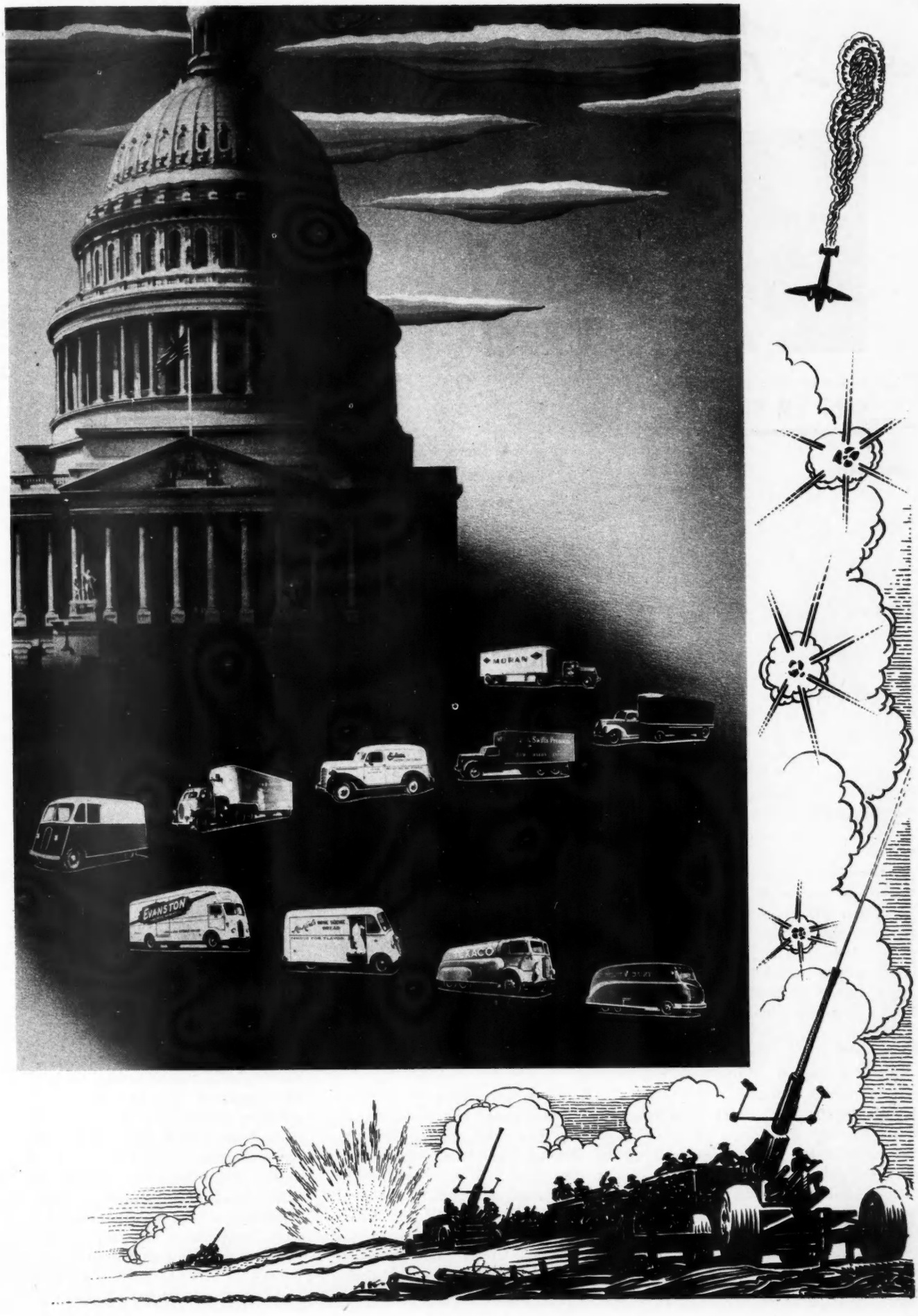
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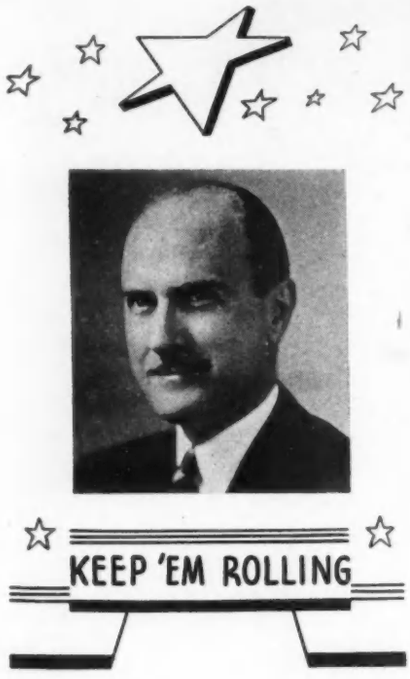


by

Chief Allocations Section, Office of Defense Transportation

SIX MONTHS OF TRUCK RATIONING

A summary of commercial vehicle allocations reveals: 1. Most went to contractors on military projects. 2. Balance should last until the end of 1943. 3. Of all applications disapproved, only 20 per cent have been appealed. 4. Motor transportation has not been hampered by the drastic cut in the supply of new vehicles. 5. Rationing is helping to reduce wastefulness in motor truck transportation.

THIS is the story of a new kind of war-job—the job of rationing trucks and trailers to essential civilian users by war agencies of the Federal government. A relatively small but necessary part of the national effort toward victory, it has been going on for little more than six months, yet it has already performed two fundamental services:

First, it has effectually conserved, and will continue to conserve, the small stock of new commercial motor vehicles which today is one of the nation's irreplaceable treasures.

Second, it has been one of the first means of persuading the motor transport industry to take up the slack in its operations, and thereby of driving home lessons of efficiency which will have permanent value.

Background

The background of this new job can be quickly sketched:

Jap bombs at Pearl Harbor smashed more than ships and harbor installations. They blew away also the labored drift toward increased-military-production which had characterized our preparedness program during the greater part of 1941. An all-out-for-war policy followed; the materials used in making motor vehicles—rubber, copper, steel, aluminum—quickly became "critical" and had to be reserved for the weapons of war; tire-rationing was announced; the automotive industry was converted into a war industry, and stoppage of production of civilian trucks and passenger cars became inevitable. On New Year's Day, January 1, 1912, at six o'clock in the evening, the penning of a signature on an Office of Production Management (now War Production Board) order "froze" the sale of all new commercial vehicles, and with that act war-time definitely and unmistakably arrived for motor transportation.

Here was the problem with which the Washington war agencies—including the newest of them, the Office of Defense Transportation, created on December 18—were confronted at that moment: During the year 1941, the last "normal" year which we may see for some time, about 700,000 new trucks and truck chassis of civilian type were sold in the United States. At the beginning of 1942, the stock which was to last for that indeterminate period called the "duration," and including all units either manufactured or to be manufactured, was estimated at somewhere around a quarter of the 1941 sales. The question was, how could this relatively small supply be adjusted to the normally huge demand? And the answer was, only by a careful system of rationing to the most essential users. Thus was born the truck-allocation program.

Organization and Procedure

It took only two months to organize the job and set it ticking, and this flying start was aided by preparatory planning for this very problem on the part of the Central Motor Transportation Committee, and by the availability for service of trained field employes of the Interstate Commerce Commission. From the beginning, it was a cooperative effort of the War Production Board and the Office of Defense Transportation, and so it

(Turn to Page 142, Please)

SIX MONTHS' RATIONING STATISTICS

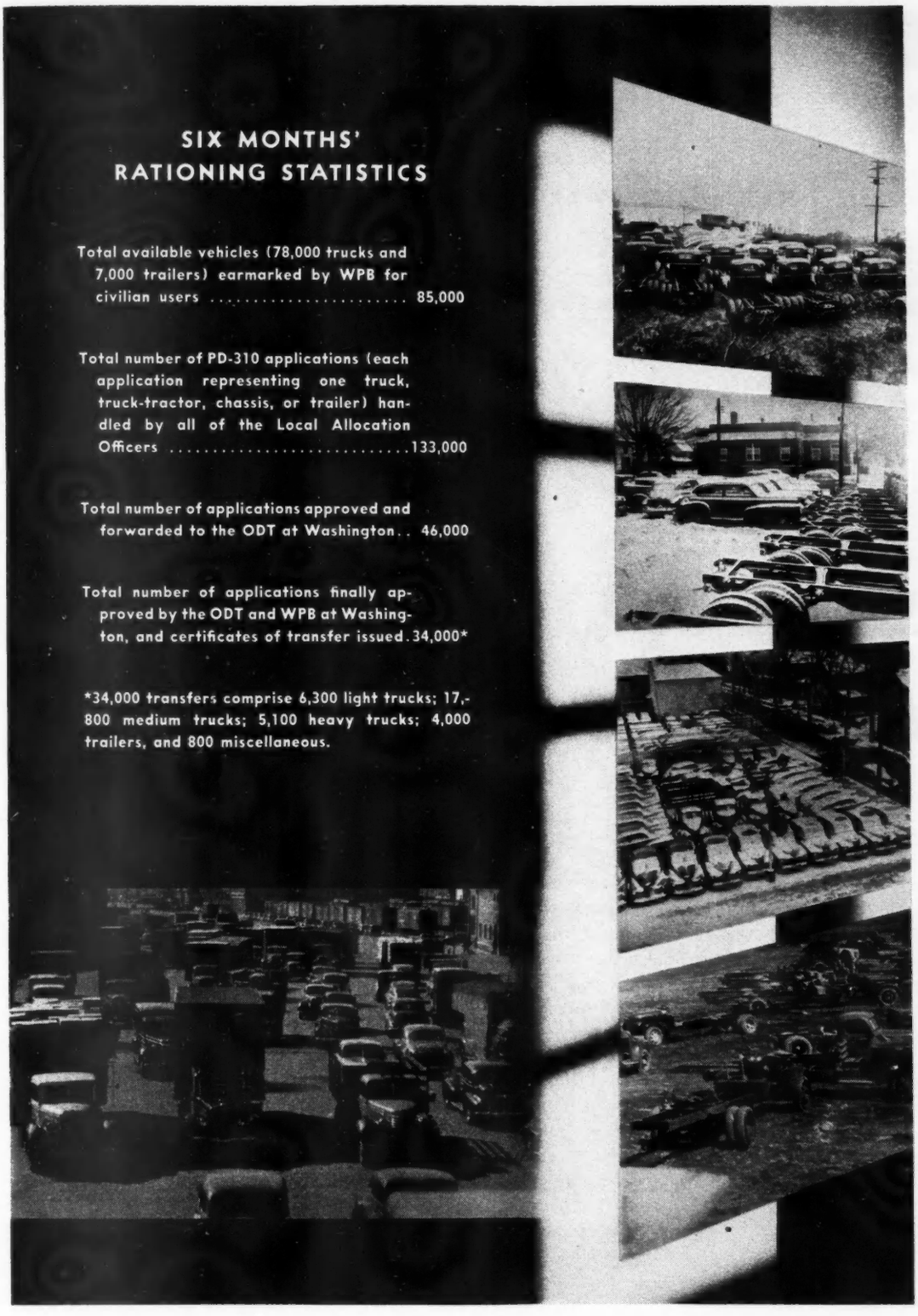
Total available vehicles (78,000 trucks and 7,000 trailers) earmarked by WPB for civilian users 85,000

Total number of PD-310 applications (each application representing one truck, truck-tractor, chassis, or trailer) handled by all of the Local Allocation Officers 133,000

Total number of applications approved and forwarded to the ODT at Washington.. 46,000

Total number of applications finally approved by the ODT and WPB at Washington, and certificates of transfer issued.34,000*

*34,000 transfers comprise 6,300 light trucks; 17,800 medium trucks; 5,100 heavy trucks; 4,000 trailers, and 800 miscellaneous.



KEEP 'EM ROLLING

A breakdown in the transportation system of the country must be avoided at all costs because such an unfortunate event might easily cost us the victory

by

William J. Cumming

Chief Vehicle Maintenance Section, Division of Motor Transport, Office of Defense Transportation

SUPER-MAINTENANCE DEMANDED FOR DURATION

FOR years, fleet maintenance operations were confined to irregular idle periods, when vehicles were not engaged in useful work, or when, because of actual failure, they were unable to perform such work. Fleet maintenance schemes of this type sought only to lubricate the vehicles during occasional inactive periods, or to replace parts or units at the time of failure. Adjustments to compensate for wear were seldom included in maintenance plans.

Later, true preventive maintenance was practiced, which not only provided lubrication and adjustment at fixed periods, according to the severity of the work encountered, but sought to make renewals and replacements ahead of actual failure.

Today a new era has arrived, material and labor costs are rising, and emergency measures, brought about by the war, are curtailing the procurement of many necessary supplies and service parts. We have arrived at a period in which a much superior type of preventive maintenance must be practiced, and in which even the slightest unnecessary wear and failure must not occur.

While it is a fact that new truck pool is being allocated in a most competent, cautious manner and to the greatest advantage to the war effort, we also know the pool is not bottomless and will be dry within a year or so. We must conserve every piece of present equipment. Under the conditions described, it is important to consider what added precautions can be taken in present maintenance procedures to provide the perfection demanded.

Regular Inspections Pay

We have had approved inspection and maintenance procedures for years. Many fleet operators and even small operators have established beyond any possible doubt that a close adherence to such schemes pays huge dividends in uninterrupted and failure free operations.

With the insertion of the preventive idea, automotive maintenance received its first definite inclination to engineering. "Engineered maintenance", so-called, was considered the "cure-all" for the many ills formerly encountered. It was then, the casual and daily usual experiences and failures were ignored, and emphasis was placed on the more important preventive operations, which were designed to eliminate all such minor faults with a replacement at some fixed time. The results were not as planned.

Daily operating experiences in transportation are still the solid foundation on which to build a successful maintenance scheme. They contain the record of performance of every vehicle of the fleet, they offer comparisons of efficiency of one type of equipment over another, they give the reason, providing a search is made, for every interruption to scheduled operation.

An annual study of such data is a surprising source of varied information. These records of experience are the basis of recommendation for future purchases of equipment and

(Turn to Page 94, Please)

U. S. TRUCK CONSERVATION CORPS

THE WAR AND THE FUTURE

All considerations must be secondary to our chief objective—complete victory—but certain potential problems must be faced and solutions planned

by

Geo. Rodgers

President, American Trucking Associations, Inc.

WAR inevitably brings changes, and though it is small consolation and meager compensation for the misery and suffering caused by the holocaust which gives them birth, many of these changes result in improvements which benefit mankind.

Engineering and scientific advancements in the automotive field in the last war had an important effect on the development of motor transportation as we know it today. The present conflict already has had its effects on transportation, and other developments still to come undoubtedly will have a hand in shaping the future of the trucking industry and other agencies engaged in hauling of freight.

While the first order of business is utter and complete defeat of the enemies who would destroy our way of life, it is not too early for motor carriers to think about the future—that future which is, after all, the thing we are fighting to protect, and which is filled with so many uncertainties.

Motor carriers who take the long view unquestionably have been wondering what is in store for the trucking business in the critical months just ahead and the unpredictable period that will follow the war. So many imponderable factors enter the picture that one man's guess might be as good as another's. On the other hand, a study of conditions as they were and as they are now gives us certain signs and indications of what lies ahead.

Operations Will Improve

To begin with, it is a virtual certainty that the war will result in improvement in methods of truck operation and broadening of the scope of the service trucks are capable of performing. The advancements in automotive design and construction that have been necessary to make our military vehicles the best in the world will mean better commercial trucks after the war. Highways are being and will continue to be improved. These improved trucks, rolling over better highways, will carry greater loads and will make better time. Highway freight service should be faster, more flexible and more economical than ever before.

The scope of truck operations has been broadened by the war. Now that use of the best transportation service available to perform a given task has become an urgent matter, many old prejudices against motor transport have been cast aside. The industry is getting a better chance to show what it can do. The U. S. Government, now the largest shipper in the world, is routing a growing portion of its freight via truck. Private shippers who once were partial to railroads are using trucks now and are horrified by any suggestion or proposal that might deprive them of truck service. Manufacturers who are making new products and, therefore, are confronted with new problems of transportation, are learning how readily and efficiently truck service can be adapted to meet their needs.

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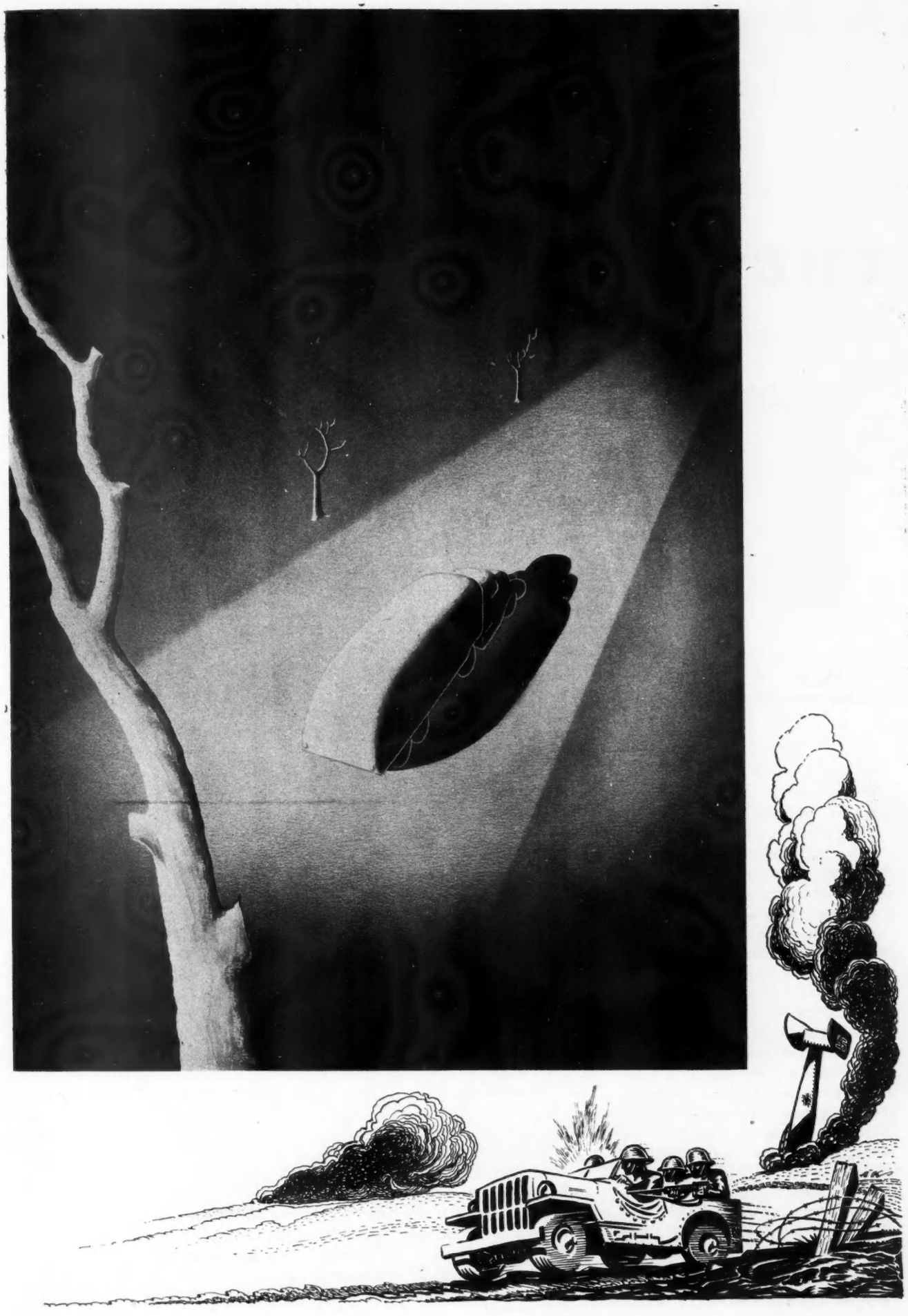

War dramatizes highway transportation barriers, and present trend of suspending them should be expanded to bring about their elimination for all time

THE LEGISLATIVE FRONT

KEEP 'EM ROLLING

by Chester H. Gray

Director, National Highway Users Conference

THE war has brought a more wide-spread recognition of the great dependency of our American economy upon highway transportation but the accompanying loss of our crude rubber supply has resulted in drastic federal restrictions of motor vehicle use. The effort to obtain maximum transportation from the existing supply of tires and tubes has produced both favorable and unfavorable results.

On the favorable side there has been general condemnation of highway barriers and some progress has been made in their removal. Dramatic as the ill effects of these barriers appear in war time, they are no less harmful in peace; and the present trend of suspending them "for the duration" must be expanded to bring about their elimination for all time.

The Baruch Report more constructively and in more statesmanlike manner develops and recommends a positive, forward-looking program of synthetic rubber production, which when put into effect will make punitive regulations unnecessary and make possible the elimination of some of those now in operation.

Some Progress Made

Highway user groups were able to make some progress in liberalizing state motor vehicle size and weight restrictions at the comparatively few legislative sessions this year. Even more beneficial results have been obtained by administrative action of state authorities to bring their size and weight regulations up to the minimum standards recommended by the United States Public Roads Administration.

Following the Federal-State Conference on War Restrictions in Washington last May, it was announced that all states had agreed to complete motor vehicle reciprocity but like the premature publication of Mark Twain's death, this situation seems to have been exaggerated. Some governors took the position that reciprocal agreements on motor vehicle fees amounted to suspension of state tax laws and that they were without authority to take such action. Other governors are reported to have eliminated any reference to motor vehicle reciprocity from their proclamations or statements announcing adoption of the minimum size and weight regulations. Many complaints are heard in Washington from motor vehicle operators experiencing difficulty with state reciprocal agreements. At best there appears to be rather wide-spread misunderstanding and the situation remains greatly in need of clarification.

Changes in Kentucky

The 1942 Kentucky Legislature increased gross weight of trucks from 18,000 lbs. to 28,000 lbs. and maximum length of tractor-semi-trailers from 30 ft. to 33 ft. on certain designated highways. This liberalization will expire with the national emergency and the weight limitations will revert to the old 18,000 lbs. limit.

The Virginia Legislature this year authorized the State Highway Commission to increase axle weights to 18,000 lbs. and gross weight of a 6-wheel motor vehicle to 40,000 lbs. on highways which the Commission considers capable of carrying such increased weight.

This spring the Louisiana Legislature repealed net load provisions and provided 18,000 lbs. gross weight on the rear or load-carrying axles of trucks and semi-trailers. A total gross weight of the trailer is fixed at 36,000 lbs. regardless of axles and if the load-carrying axles are 10 ft. or less apart the gross weight per axle is limited to 16,000 lbs. As in

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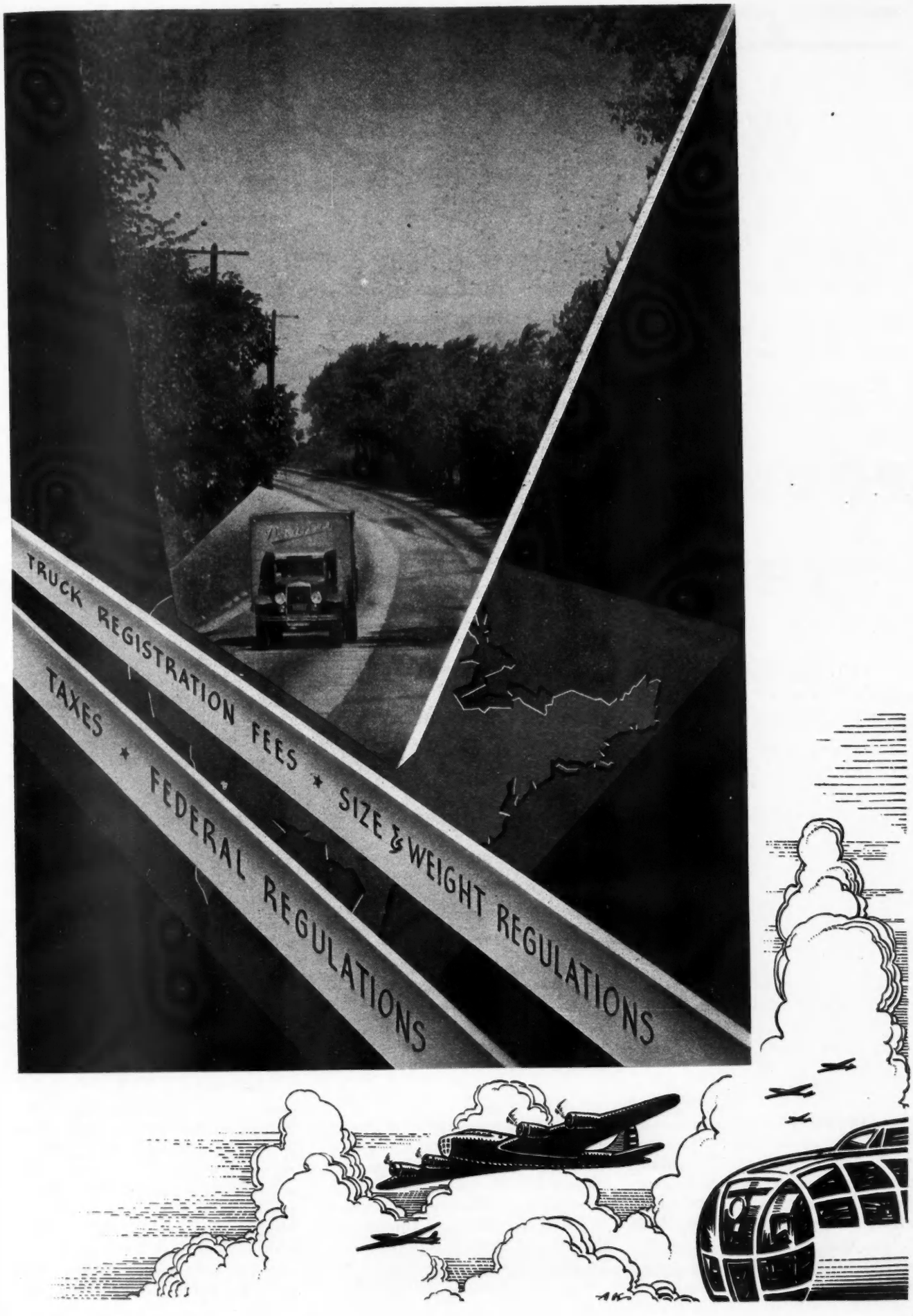

TRUCK REGISTRATION FEES
SIZE & WEIGHT REGULATIONS
TAXES
FEDERAL REGULATIONS

PRODUCTION AND THE PRESENT

With manufacturers stepping up output of war goods no plentiful inventory of parts is in sight, so maintenance-as-usual must be revised to fit the times

by

Arthur C. Butler

Manager, Military Vehicle Division, Automotive Council for War Production

AUTOMOTIVE maintenance men may never qualify for the Army and Navy "E" award but circumstances are challenging their resourcefulness to the point where, if they manage to keep 'em rolling, they will deserve the much-coveted emblem, whether they get it or not.

To keep 'em rolling is an Army-sized job in itself. Motor transportation is confronted with a task, the dimensions of which are far in excess of the busiest peace-time years.

Joseph B. Eastman, Director of the Office of Defense Transportation, adequately spells out the size of the job in the first two paragraphs of his letter to commercial motor vehicle operators apropos the "Certificate of War Necessity," in which he says:

"The United States now has about 4,890,000 non-military trucks and about 154,000 buses. The trucks are carrying a tremendous volume of property and the buses a tremendous volume of people. Our railroads are operating to near capacity. They could not carry the traffic which the trucks and buses are carrying: First, because they do not have the capacity, and second, because they are so located that they could not handle a great part of this traffic, even if they had the capacity.

"Most of this traffic is essential. Our country will suffer severely, and the war effort will suffer, if the trucks and buses and other commercial motor vehicles find themselves unable to continue to handle this essential traffic, or any large part of it. They must be kept rolling."

This is an appeal for conservation of equipment, but, what is more, it is a challenge to maintenance experts to meet the issue.

For a civilian motor transport must be kept rolling with scanty, if any, reinforcements from the new vehicle production lines.

Armaments production of motor vehicle, trailer and parts manufacturers is daily climbing far beyond the heights of peacetime production in the automotive industry. Currently the industry is producing weapons of war at an annual rate of $5.4 billions, or 32 per cent ahead of the average rate of production of military items in 1941—the peak year for peacetime output. This annual figure is equivalent to daily deliveries of $14.5 million in aircraft, ordnance and naval equipment.

The industry produced $450 million in armaments during August. This was a $36 million, or nine per cent increase over July.

Or, as "Automotive War Production" puts it "while production rates of individual war products are necessarily military secrets, this $36,000,000 increase is more graphically presented by listing its equivalent in various products, picked out at random. Thus, the production gain is equal to 100 tanks, plus 50 sets of bomber subassemblies, plus 100 aircraft engines, plus 150 marine motors, plus 1000 military vehicles, plus 100 anti-aircraft cannon, plus 100

tank and anti-tank cannon, plus 500,000 large shell casings, plus 500 machine guns, plus more than $3 million in the nearly 300 other armaments produced by the automotive industry."

Skyrocketing of war output, along with government limitation orders to preserve materials for armaments production, makes the job of "keeping 'em rolling" one of maintenance and conservation of existing equipment.

No passenger cars are being produced—a trickle production of special types of trucks and buses has been authorized for specific uses by the War Production Board.

Materials Situation Tight

The materials situation is so tight that it is becoming a question of what armaments will be made ahead of others. Fewer critical materials are getting into civilian channels, essential as they might be. New plans under consideration may result in the parceling of critical materials on a basis that will more clearly determine the amounts to be allocated to armament production as well as to civilian supply. Undoubtedly equipment and parts for the maintenance of motor vehicles will rank high in any plans for distributing materials for civilian purposes.

At this time, the Office of Defense Transportation says, "the supply of repair parts is critically limited."

Under Amendment No. 2 to Parts Limitation Order L-158 producers of replacement parts are authorized to schedule in their production of rated and unrated orders as if they carried AA-2x ratings. Under this plan producers are still limited by the amounts authorized by their production requirements plan certificates to the quantity of material they may purchase.

This is an earnest effort by the Automotive Section, War Production Board to protect production schedules which have been badly battered over recent months due, among other things, to the critical materials situation.

With the AAA's and the AA's that have been superimposed on the priorities rating system, the AA-2x rating, high as it is for civilian products, offers about the same prospects for obtaining materials as the origi-

(Turn to Page 114. Please)

SECTION TWO

CONSERVATION MAINTENANCE

Thirteen Tire Conservation Tips..... 38
Alignment & Balance 42
Gas Saving Suggestions..... 44
Free Maintenance Manuals 56
Parts Salvage in Pictures..... 58
Storage Maintenance 60
Preventive Maintenance Routine..... 61
Engine Reconditioning Review 62
Tire Recapping Instructions 82
Expander Rings Conserve.....132
Tire Storage Recommendations.....160

COMMERCIAL CAR JOURNAL MOTOR TRUCK COMPONENT PARTS SPECIFICATION TABLE.... 47

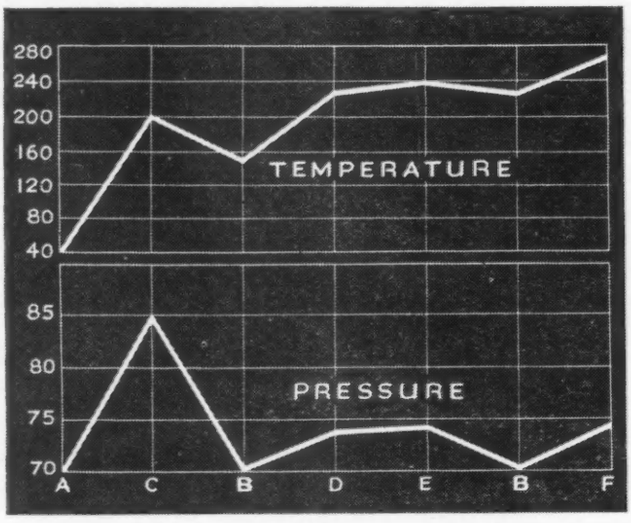


Fig. 1. Note that temperature and not pressure destroys tires on heavy, sustained runs. "B" indicates points on run when tires were bled

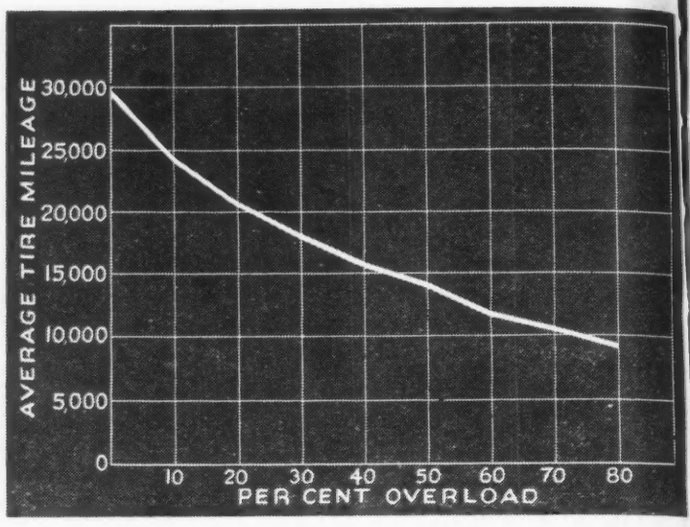


Fig. 2. Taking a casing with a life expectancy of 30,000 miles, overloading will decrease tire life in proportion to percentages indicated

13 TIRE CONSERVATION TIPS

FLEET operators who have been maintaining a good tire conservation program are in an extremely favorable position. They're not just lucky—they've proved that they have good business sense, good management ability and good foresight. In addition, they have accumulated much valuable experience in getting the maximum mileage out of their tires, to say nothing of the money they've saved doing it. Moreover, they have their drivers and their entire maintenance organization conscious of tire care and conservation. That's a very valuable asset because it takes a while to get any conservation program rolling efficiently with the enthusiastic support and cooperation of all drivers and mechanics.

In order to provide all fleet operators with a general reference we've compiled 13 timely tire conservation tips. They are brief summaries of all the essential factors employed by efficient fleet operators to obtain that much desired 100 per cent mileage built into a tire.

1. Proper Inflation

Strict maintainance of the exact recommended air pressure in tires is vital to the success of a tire conservation program. Truck tires are made to carry a certain predetermined weight at a definite pressure. Variations from this prssure, over or under, intentional or accidental, reduce tire life.

Exactly what the pressure ought to be for a given tire can be determined from any tire manufacturer's service literature, such as the operator's handbook.

Intentional variations, such as bleeding, is harmful no matter how carefully watched, according to tire manufacturers' reports after extensive laboratory and road tests.

The unanimous conclusion reached is that while bleeding reduces the pressure built up on long runs at high speeds, it increases the tire's temperature, which causes premature failure. It is temperatur increase, therefore, and not pressure which must be watched. Fig. 1 shows the results of one of these tests. It will be noted at the end of the chart that, while the air pressure within the tire was only 73 lb., the tire failed when the temperature reached around 255 lb. The tire was bled twice during the test.

Accidental variations are, of course, punctures, slow leaks, etc. Daily inspections will catch most of these in time to prevent harm.

Overinflation and underinflation destroy a tire by building up great internal stresses and heat. They weaken a casing and cause fast, uneven tread wear, thereby wasting mileage and increasing road failures.

It is far easier to see the destructive effects of underinflation on a tire than on one overinflated. Therefore, a review of the harmful effects of overinflation seems worth while.

In addition to the effects mentioned above, the harmful effects are:

a. It reduces tread contact area which,
   1. Reduces skid resistance by decreasing area of road contact.
   2. Reduces braking effect by decreasing area of road contact.
   3. Causes excessive wear on crown of tread.

b. Reduces designed deflection under load which causes:
   1. Tire bruises. When a stone or the rough edges of a hole in the paving is struck, the tire lacks ability to absorb the shock which can break the casing.
   2. Chassis shock. Excessive vibration

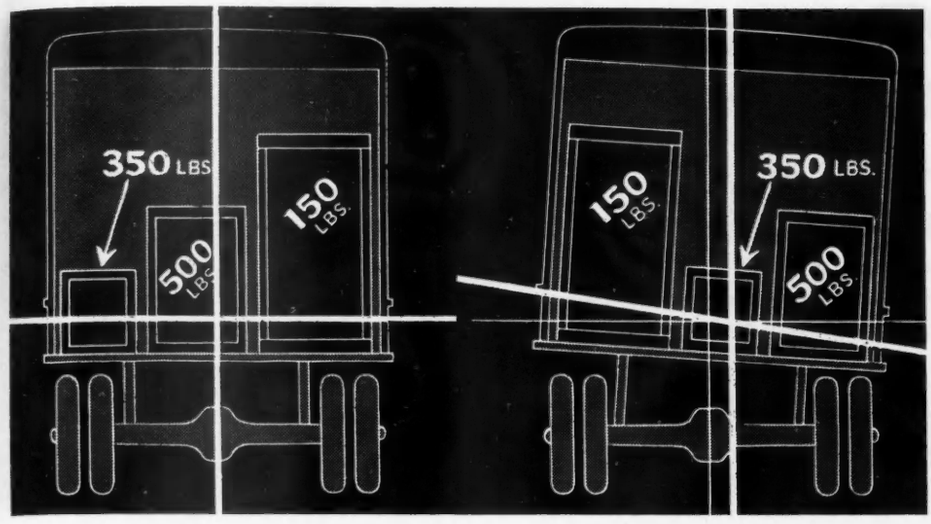


Fig. 3. Weight and not size should govern loading. Tires on right are overloaded

Fig. 4. Mechanic on creeper picks destructive foreign particles from tires

A summary of tire maintenance under war conditions shows that the fundamental factors of a tire conservation program embrace Proper Inflation, Overloading, Uneven Loading, Wide Base Rims, Periodic Inspection, Dual Matching, Rotation, Recapping, Repairing, Mechanical Failures, Driving Conditions, Storage, Records and Control

loosens mountings and bolts causing squeaks and rattles; strains body seams; throws headlights out of focus.

3. Engine shock. This is responsible for many maladjustments of the carburetor, electrical system, etc.

c. Causes hard riding. This defeats the very purpose for which balloon tires were invented. Hard on driver's system.

A study of fleet operations reveals that the principal reasons for overinflation is the erroneous impression that it adds to tire mileage. As a matter of fact, 20 per cent overinflation is just as harmful as 20 per cent underinflation, according to tire engineers.

Sometimes overinflation is unintentional. It may be the fault of an inaccurate air pressure gauge or it may be caused by inflating tires at too low atmospheric temperatures.

2. Overloading Tires

The evils of vehicle overloading have been preached and expounded at great lengths to truckers by tire manufacturers for many years. The recognition of the destructive effects of this practice on tires has caused The Office of Defense Transportation to include in General Order O.D.T. 17 a ruling limiting overloads to no more than 20 per cent of the truck's rated load-carrying ability. It should be remembered, however, that the intent of this ruling is not to indicate that a 20 per cent overload is safe, but, rather, to set a limitation as to the maximum under all existing conditions.

As a matter of fact, authoritative road service statistics have been developed by tire engineers that prove beyond a shadow of doubt that an overload of only 10 per cent will cut tire life by 25 per cent. Fig. 2 illustrates graphically how overloading affects tire wear.

Vehicle overloading produces over-flexing of the sidewalls similar to under-inflation. This creates high internal heat that weakens the cords and causes the casing to fail before full tread mileage is obtained. Overloading also causes rapid tread wear because the pressure between the tread and the surface of the road is far greater than calculated upon in the tire's manufacture.

If any uncertainty exists as to the safe and correct load for any tire, load capacity

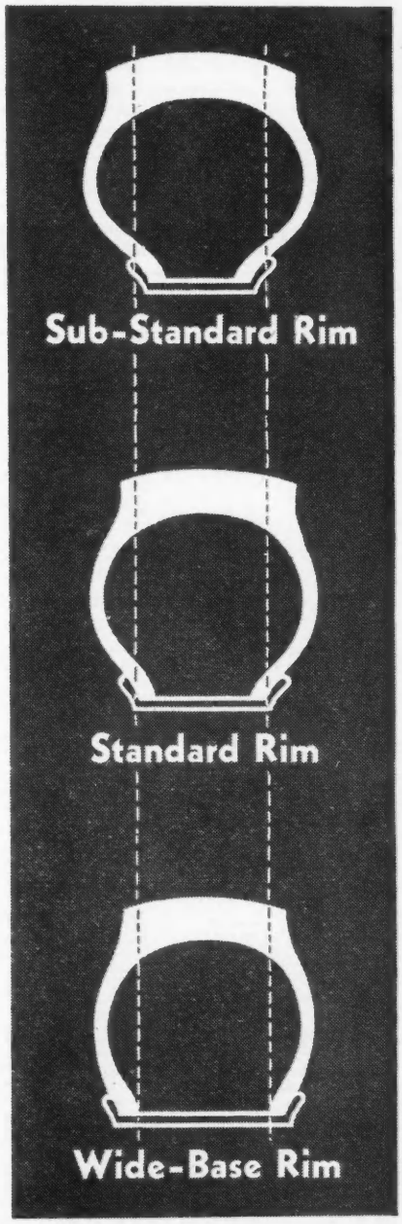


Fig. 5. Oversize tires are not a cure for overloading. Above sections show difference in sidewall strain of same tire mounted on rims of three different widths

TIRE CONSERVATION TIPS 13

(CONTINUED FROM PAGE 39)

TIRE MILEAGE RECORD

BRAND No. 311 SIZE 825 X 20 PLY-ID SERIAL 10/1963-21B MAKE U. S. TYPE FLEETWAY
PURCHASED FROM CITY TIRE CO. INV. No. 21131 DATE JUNE 22, 1942

VEH. No.	DATE ON	MILEAGE READING	POSITION	DATE OFF	MILEAGE READING	MILES RUN
14	6/20/42	13162	RF	9/20/42	23453	9291
14	9/20/42	22453	RRO			

COSTS

ORIGINAL COST	$ 51.11
REPAIRS OR RECAPS:	
	$
	$
	$
	$
	$
TOTAL COSTS	$
TOTAL MILES	$
COST PER MILE	$

REMARKS:

Fig. 7

USE CODE TO INDICATE POSITION: RF—RIGHT FRONT, LF—LEFT FRONT, RRI—RIGHT REAR INSIDE, RRO—RIGHT REAR OUTSIDE, LRI—LEFT REAR INSIDE, ETC. (CONTINUE DATA ON REVERSE SIDE)

VEHICLE AND TIRE RECORD

VEHICLE NO. 14 SIZE OF TIRES, FRONT 825 X 20 REAR 825 X 20
MAKE INTERNATIONAL RATED CAPACITY 2 3/4 TONS TRUCK WEIGHT 14,000 LBS AVERAGE LOAD 3 TONS
MATERIAL HAULED GASOLINE LENGTH HAUL 60 MILES AVERAGE SPEED 35 mph ROADS, COUNTRY PAVED-LEVEL

TIRE POSITION	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL	TIRE NO. OR SERIAL
LF	295									
RF	296	311			327					
RRI	297	296								
RRO	298									
LRI	299		317							
LRO	300			24						
SPARE	24		299							
DATES OF CHANGE	6/20/42	6/29/42	7/19/42	7/23/42	8/25/42					
MILEAGE	12397	13162	14815	15720	20729					

Fig. 8

LEGEND:
RF —RIGHT FRONT
LF —LEFT FRONT
RRI —R. REAR INSIDE
RRO—R. REAR OUTSIDE
LRI —L. REAR INSIDE
LRO—L. REAR OUTSIDE
SPARE—SPARE
RFTI —R. FRONT TANDAM INSIDE
RFTO—R. FRONT TANDAM OUTSIDE
LFTI —L. FRONT TANDAM INSIDE
LFTO—L. FRONT TANDAM OUTSIDE

VEHICLE AND TIRE INSPECTION RECORD

TRUCK NO. 14 MAKE INTERNATIONAL SIZE OF TIRES, FRONT 825 x 20 REAR 825X20

TIRE POSITION	CONDITION AND AIR PRESSURE	CONDITION AND AIR PRESSURE	CONDITION AND AIR PRESSURE	CONDITION AND AIR PRESSURE	CONDITION AND AIR PRESSURE	CONDITION AND AIR PRESSURE
LF	OK - 50# ☐	OK - CHECK WHEEL ALIGNMENT ☑	OK - 50# ☐			
RF	OK - REPLACE VALVE CAP - 50# ☐	OK - 50# ☐	SCRAPED SIDEWALL SPOT REPAIR - 50# ☑			
RRI	WORN OUT - REPLACE - 50# ☑	OK - 50# ☐	OK - 50# ☐			
RRO	OK - MATCH DUALS RRI WORN ☐	OK - 50# ☐	42#. - WATCH INFLATION - OK ☑			
LRI	OK - 50# ☐	OK - 50# ☐	OK - 50# ☐			
LRO	2" CUT - REPAIR - 50# ☐	OK - 45# WATCH INFLATION ☑	OK - 50# ☐			
SPARE	WORN - REPLACE NOW ☑	OK - 50# ☐	OK - 50# REPLACE VALVE CAP ☑			
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
INSPECTION DATES	6/20/42	7/18/42	8/22/42			
MILEAGE	12397	15,274	18,316			

LEGEND SEE BOTTOM OF OPPOSITE PAGE.
CHECK SMALL SQUARE WHEN RECOMMENDATION IS CARRIED OUT

and inflation tables should be consulted.

3. Uneven Loading

This is either an error of judgment or carelessness. The practice of loading too close to the tailgate, to save the driver a few steps, or the reverse practice of throwing everything up front, because the extent of the load may not be known at the beginning of the loading, should be stopped.

Fully loaded vehicles also frequently are unevenly loaded. Cases on the left side may weigh more than the cases on the right, even though they may be of the same general size or description.

Loads so carried will cause uneven tire wear. This wear is not proportional to the difference in weight of the two sides. It is greater on the one side because the load's center of gravity shifts toward the heavier side. This condition is illustrated in Fig. 3.

Uneven vehicle loading can be corrected at the shipping platform. It is merely a problem of supervision.

4. Wide Base Rims

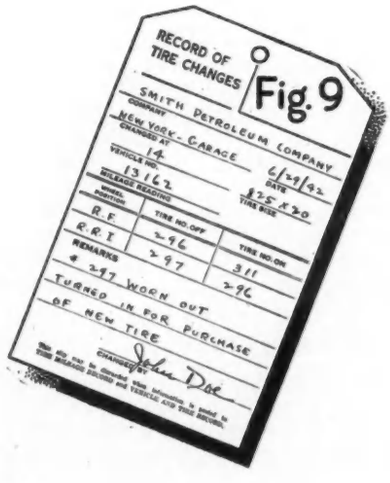
Many trucks are equipped with oversize tires to provide a margin of safety in case of overloading or to improve the vehicle's riding conditions. However, in many cases no consideration was given to the rims when making the changeover. The following conditions have been found to exist on vehicles in many fleets:

a. Proper tires for vehicle's gross load capacity but mounted on sub-standard rims.

b. Oversize tires on standard or sub-standard rims.

Tires in service under either of the above conditions will reduce tire mileage to a considerable degree. In both cases the sidewalls of the casing are flexed to a far greater arc than provided for in the tire's manufacture. This produces greater sidewall stresses than calculated for and creates a condition similar to underinflation, as shown in Fig. 5.

Figs. 7 and 8, on the left are good examples of tire control forms for fleets



The best method of correcting either of the above conditions is to equip such vehicles with wide base rims. An article on this subject appeared in last month's issue of COMMERCIAL CAR JOURNAL. Reports from a number of fleet operators were given to substantiate tire and rim manufacturers' claims that wide base rims improve traction, riding and breaking. Evidence also is introduced to show that wide base rims reduce rim failures and sidewall cracks, thereby prolonging tire life and mileage.

It is essential that every fleet operator carefully check the first four points just covered, because no amount of patching, retreading or mechanical adjustment can correct those basic faults.

5. Periodic Inspection

Periodic inspection of tires has the same beneficial results in prolonging tire life and service that preventative maintenance has in prolonging a vehicle's life. It also cuts down the possibilities of sudden road failures.

The consensus of the most successful fleet operators is that tires cannot be checked too frequently and that the time so expended pays big dividends. The Office of Defense Transportation recognizes the need and importance of frequent tire checks by including tires on the check list of the Driver's Daily Report, as well as in the thousand-mile inspections. Inspection is compulsory every 5000 miles or 60 days, whichever comes first, under terms of General ODT Order No. 21.

Best practice among the most successful fleet operators provides for a quick daily check, a more thorough weekly check and a complete check at monthly or 60-day intervals.

The daily check is nothing more than a quick tread and inflation inspection. This check should be made before the start of a tip. At this time the tires are cool and the true air pressure within the tube can be more accurately determined. Checking the tread for tacks, glass or sharp cinders daily will prevent them from becoming too deeply imbedded in the tread and eliminate the necessity for digging deep into the tread when making the weekly inspections. Moreover, some of the smaller sharp particles become so deeply imbedded after a week's run that they may escape notice. In time they will work past the breaker strip and start cutting into the cords.

At the weekly intervals the inspections should be more thorough. Casings should be closely examined for breaks which should be filled. Foreign particles should be carefully removed. As shown in Fig. 5, this work does not require the removal of the tire. The mechanic in the illustration is on a creeper and is using an ordinary ice pick for the job. The wheels are jacked up, of course, and a good light is provided.

Every month or two, depending on mileage, usually at 5000 mile intervals, tire inspections should include, in addition to the above, matching of duals, rotation, front end inspection, etc.

Experience has shown that excessive wear of the front tires usually is the result of mechanical faults, such as caster, toe-in, camber, etc. Inspections for these conditions are included in the monthly and thousand-mile inspections. Further discussion of this point will be found in this article under "9. Mechanical Conditions."

Wheel balancing has become another 5000-mile inspection item. Not only static but dynamic balance is carefully checked. While this may be classed as a mechanical fault, wheels are often unbalanced by bad sidewall scuffs that gouge out large pieces of rubber. It is generally recognized that liners and blow-out patches will cause unbalance and the use of such tires on the front end should be avoided.

6. Matching Duals

Improperly matched duals cause the best tires to pay a heavy penalty in service by compelling them to carry more than their share of the load. The condition of operation is similar to overloading a tire, the degree of the overload depending on the extent of the mis-mating. Unequal inflation of each tire in a dual set will also cause the same conditions of wear and strain as unmatched physical conditions.

The importance of carefully matching duals appears to be generally recognized and practiced by fleet operators everywhere. The only difference appears to be in the methods and aids used for this work. Best practice is to measure circumferences carefully with steel tape measures and check rolling radii with gauges.

The important point is to get each set of dual tires as nearly alike as possible, so that the load carried is uniformly distributed. Size markings on the casing are unreliable because even new tires of a given size but different make will show appreciable differences in circumferences. In addition, after long service, tires "grow" and thus alter their physical dimentions. This growth is unequal with respect to the various makes.

When tires of unequal circumference are paired, the smaller should be mounted on the inside.

7. Rotation of Tires

Tire rotation, once practiced only by the most successful fleet operators, is being generally adopted because it has been definitely establishd that transfering tires from wheel to wheel at various stages of wear adds many miles by equalizing wear.

While the exact order of rotation for truck tires depends on the type of vehicle, the number of tires in service and the particular operating conditions involved, most fleet operators start new tires on the front and then transfer them to the various rear wheels. The principal advantage of starting tires in the front seems to be well known. Here the loads and stresses are not as great as on the front. The tires are able to break

(TURN TO PAGE 124, PLEASE)

Fig. 9. A tag, as shown on the preceding page, helps keep tire records right

Fig. 10. This is one example of tire rotation as discussed in this article

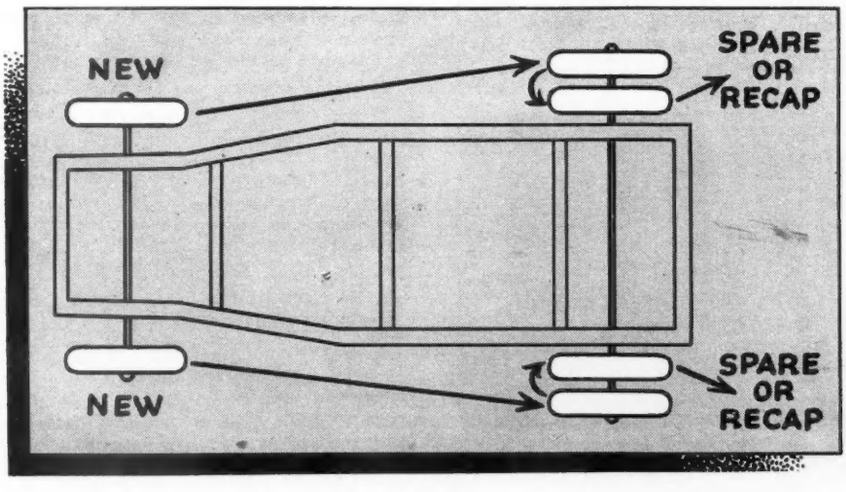
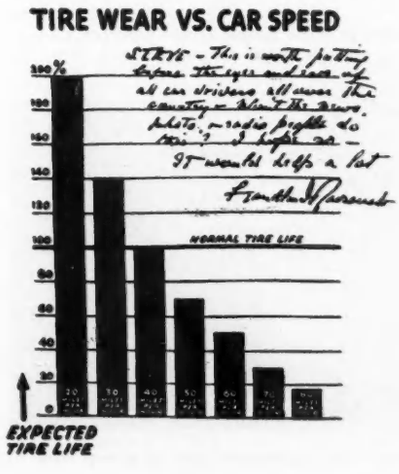
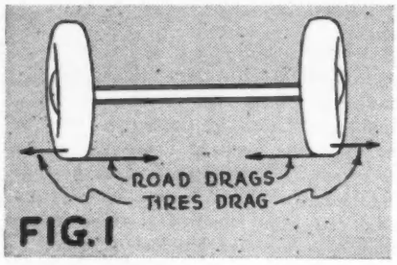


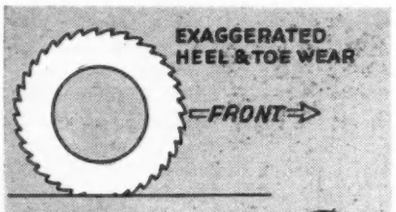
Fig. 11. Personal interest in tire conservation by the President is shown below

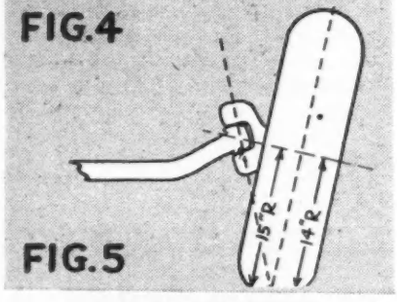




Showing the effect of excessive toe-in

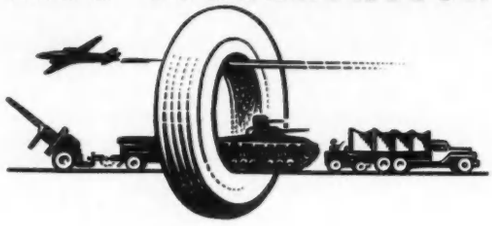
Type of tire wear produced by wrong toe-in
Toe-out wear is opposite from toe-in wear





Type of wear produced by incorrect camber and the reasons for camber tire wear

TIRE CONSERVATION



ALIGNMENT

★ ★ ★ CAUSE AND

INCORRECT TOE-IN

A. By what percentage does incorrect toe-in reduce tire mileage?
Answer: 5-75 per cent depending on the amount toe-in is out.

B. On what part of the tire does the abnormal wear show up?
Answer: Wear will appear on the entire circumference of the tire.

C. What is the characteristic of the wear that would identify the cause?
Answer: Tire wears from outside to inside of tread leaving feather edge on inside edges of ribs. It is usually more pronounced on the right wheel than on the left.

INCORRECT TOE-OUT

A. By what percentage does incorrect toe-out reduce tire mileage?
Answer: 5-75 per cent depending upon the amount of toe-out error.

B. On what part of the tire does the abnormal wear show up?
Answer: Wear will appear on entire circumference of tread.

C. What is the characteristic of the wear that would identify the cause?
Answer: Tire wears from inside of tread to outside, leaving feather edge on outside edges of ribs. Most wear will appear on inside half of tread. It is usually more pronounced on the left wheel than on the right.

INCORRECT TRAILER CAMBER

A. By what percentage does incorrect camber of a trailer dead axle reduce tire mileage?

Answer: 10-50 per cent depending on the amount that camber is out.

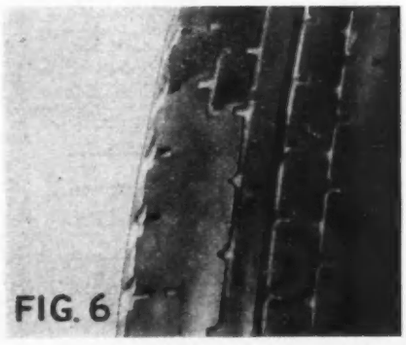
B. On what part of the tire does the abnormal wear show up?
Answer: Inside or outside half of tread, depending on whether too much or too little camber.

C. What is the characteristic of the wear that would identify the cause?
Answer: Wear on the outside half of tread with excessive camber, wears inside half of tread when camber is not enough. Does not leave a feather edge. This wear takes the form of deep depressions or waves or "heel and toe."

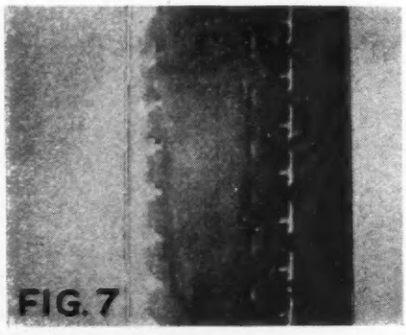
INCORRECT CAMBER

A. By what percentage does incorrect camber reduce tire mileage?
Answer: 10-50 per cent depending on the amount that camber is out.

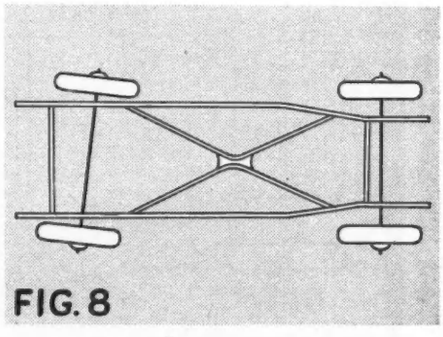
B. On what part of the tire does the abnormal wear show up?
Answer: Inside or outside half of



Tire wear on shoulder due to wrong camber



Tire wear on trailer wheel—wrong camber



Incorrect tracking will cause tire wear

& BALANCE

Wobbly wheels and misalignment cause abnormal tire wear. Here's how to detect the principal alignment defects and the effect they have on tire wear.

EFFECT ★

tread, depending on whether too much or too little camber.

C. What is the characteristic of the wear that would identify the cause?

Answer: Wears on outside half of tread with excessive camber, wears on the inside half of tread when camber is not enough. Does not leave a feather edge. This wear takes the form of deep depression or waves or "heel and toe."

INCORRECT TRACKING

A. By what percentage does the incorrect tracking of rear wheels reduce tire mileage?

Answer: 10-75 per cent.

B. On what part of the tire does the abnormal wear show up?

Answer: Inside wear on one wheel and outside wear on other wheel over entire tread.

C. What is the characteristic of the wear that would identify the cause?

Answer: Wear will resemble toe-in or toe-out wear. A feather edge wear similar to toe-in or toe-out, but less pronounced.

UNBALANCED WHEELS

A. By what percentage does this condition reduce tire mileage?

Answer: 10-50 per cent depending upon how much the wheel is out of balance.

B. On what part of the tire does the abnormal wear show up?

Answer: In the case of static unbalance, one spot will appear opposite heavy portion of wheel. In the case of dynamic unbalance, it may appear all around the tire.

C. What is the characteristic of the wear that would identify the cause?

Answer: In the case of static unbalance, usually one large spot with one or two small spots on back side. In the case of dynamic unbalance, it is generally spotty wear not limited to one area as in case of static unbalance.

BACK in the days when tires were plentiful, wheel alignment and balance were maintenance operations performed chiefly by economy-wise operators. Today, when it is necessary to conserve their tires and get the maximum mileage from them, alignment and balance are vital subjects to all operators.

Of all the conditions which cause abnormal tire wear, misalignment and wheel unbalance account for a larger percentage of the waste than any other. Misalignment and wheel unbalance can shorten tire life by 75 per cent, according to some authorities.

Tires should be inspected regularly, and when misalignment or unbalance conditions show up, they should be corrected at once before precious rubber is wasted. A wheel need be only ⅛ in. out of line to cut the tire's life by 50 per cent.

Unbalanced wheels cause tires to hop, bump and pound. This pound knocks away precious rubber. An ounce of unbalance grows to a 12-lb. vibrating force at 60 miles per hour.

All of the horsepower of a truck is needed to pull the load and when a large percentage of it is required to overcome the resistance of scuffing tires caused by misalignment, the cost of gas and oil per mile goes up.

Alignment and wheel balance when corrected do not remain in that state for any specified length of time. Many conditions of driving, wear of parts, etc., will change alignment angles; therefore, it will be necessary periodically to check every alignment factor if the operator wishes to secure the maximum mileage from his tires.

Two Objectives

Front-end alignment has two objectives: the driver's safety and economy of operation. Economy is effected through the elimination of abusive tire wear and the correction of alignment conditions which would tend to loosen and wear the various connections of the steering mechanism.

Abnormal tire wear may clearly denote a toe-in or toe-out condition, but it would be useless merely to adjust the tie-rods when the caster or camber may have changed to cause the error. Also measuring and correcting the camber, caster and toe-in angles may be necessary, but useless if the king pins, bearings, bushings and tie-rod connections are not in proper condition. So an alignment job should cover all the units which comprise the steering control, ranging from complete alignment of the chassis to balancing of the wheels.

There are over 250,000 combinations of misalignment factors which cause tire wear, but only rarely does a specific condition occur alone so that a well-defined tire wear type can be correlated to the defect that causes it. The majority of cases of abnormal tire wear are caused by combinations of defects. There are, however, a few distinct types of wear easily recognized as being caused by certain conditions, although the conditions themselves may comprise a number of factors.

Toe-in, toe-out, camber, caster, camber of dead axle on trailers, incorrect tracking of rear wheels and wheel balance probably have the greatest effect on tire wear. Of course any loose, worn or bent steering part will affect any of these factors and consequently result in abnormal tire wear.

Following is a list of the principal alignment defects with their corresponding distinctive features of resulting tire wear:

Toe-In

Incorrect straightaway alignment or toe-in, as it was formerly called, is one of the greatest contributors to abnormal tire wear. Recent extensive research in tire wear has shown that camber wear and straightaway wear are not related. Each factor causes a distinct and separate wear. When straightaway is set at zero, tire wear due to side drag is eliminated, regardless of camber. This setting does not eliminate camber wear, however.

When front wheels are toed-in excessively as they travel down the road, they are dragged sidewise, or it may be clearer to imagine that the road surface is being pulled sidewise from under the wheels, as in Fig. 1. The wear produced by toe-in resulting from this drag is shown (greatly exaggerated) in Fig. 2. The feather edges can be felt by rubbing the hands outward across the face of the tire. Rubbed in the opposite direction, the tires will feel smooth. The right front tire receives more such wear than does the left.

(Turn to Page 84, Please)

GAS SAVING

NOW that gasoline is being rationed, fleet operators should become more fuel consumption conscious than ever before. Operators should redouble their gasoline economy programs, not only as a patriotic duty to conserve gas but also to get more miles out of the fuel allowed them and to hold down the cost of operation.

Many units of a truck engine affect gasoline mileage, and they must be kept in good operating condition and in proper adjustment if economical operation is to be attained. Other factors also affect gasoline economy. Here is a review of all the factors:

Spillage

The most logical place to start a gasoline saving program is at the gasoline pump. Experience of operators has shown that a large percentage of gas is wasted by spilling on the ground at the time of filling. This is due in part to carelessness and also in part to pumps and hoses which are defective.

When gas pumps are placed outside of a building the attendant is bound to be careless when he is exposed to rain or snow, or when he has to work in the dark, as is often the case. When pumps are placed inside of a building it is easier for the attendant to prevent spilling of gasoline. It is also easier for the superintendent to check on losses due to carelessness.

There are several devices which will help to prevent spilling and waste of gasoline.

Defective pumps or hoses should be repaired or replaced with new ones.

Pilferage

Without doubt much gasoline is deliberately pumped into the wrong tank. Some of it is pumped into the right tank and then drained into another. Theft is not a pleasant subject and most operators will have no taste for investigating it. Still, if gasoline is to be saved, it must be done. A flow-meter, installed on a truck at the carburetor or some place on the gas line leading from the tank, will tell if the truck is consuming all of the gasoline that the records show is put into the tank. A flow-meter will also make drivers more careful and cost conscious. Devices are also available which, when installed in the filler neck of a gas tank, will prevent syphoning of fuel.

Driver Training

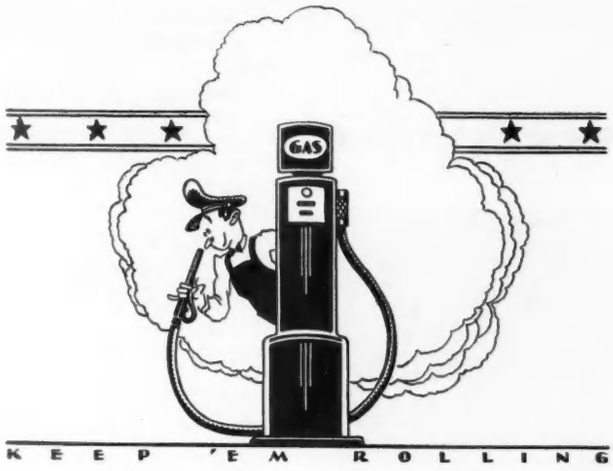
Drivers should be made to realize the necessity of saving gasoline, and should be taught the proper driving methods that will obtain the greatest fuel economy. Too often truck drivers make too many and too extensive stops at lunch counters. Making up time that is lost is not very conducive to gasoline economy. To make up for time lost, drivers resort to excessive speed and jack-rabbit starts in traffic. Both of these conditions use up gasoline at a fast rate. A governor will safeguard trucks from overspeeding, and the results will be better gasoline mileage. Over 200 fleet operators using governors on their equipment reported a saving of 13½ per cent in gasoline mileage. The installation of a recorder will tell the operator what the driver is doing with his time. It will record unnecessary stops, excessive speed and standing time. All of these factors affect gasoline economy and cost of operation.

Drivers should be instructed that in ascending a hill they should not wait until the last second to shift to a lower gear. Doing so not only loses speed and overtaxes the engine but also consumes more gasoline.

Some drivers have a habit of pumping the accelerator pedal while the truck is standing still at a traffic light or while parked with the engine running. This is a practice that results in excessive gasoline consumption, and should be avoided.

Here is a summarization of driver's faults which may waste gasoline:

1. Excessive use of choke causing a rich mixture and wastage of fuel.
2. Tampering with carburetor adjustments.



A summary of time-tested ideas that will help fleet operators get the last possible mile out of their gasoline rations and hold down this important cost item

SUGGESTIONS

3. Failing to keep radiator covered in cold weather causing wastage when starting and when operating at low temperature.
4. Excessive racing of engine.
5. Too rapid and too frequent acceleration and deceleration.
6. Use of low gears which could be avoided by skillful operation.
7. Idling engine too much at stops.
8. Failing to change gears at the proper time when ascending a hill.
9. Misappropriation of gasoline by various schemes.

Idling

A certain amount of idling is of course necessary in all fleet operations, but much gasoline can be saved by elimination of unnecessary idling. The amount of saving depends upon the type of service, with the door-to-door fleets gaining the most. One fleet recently eliminated idling and found not only a saving in gasoline but also better battery life, due to the fact that it is easier on the battery to make the necessary starts than it is to operate below a charging rate.

One fleet engaged in multi-stop operations found that it was no easy matter to induce drivers to cooperate by cutting the engine every time they stopped to make a delivery. After the installation of an automatic cut-off device on the vehicles, records showed a 25 per cent increase in gasoline economy.

Ignition System

On the mechanical side, the ignition system stands out as the most important gasoline economy factor. A good spark is necessary for complete combustion. The entire ignition system upon which the spark depends should be checked: battery, spark plugs, distributor, coil, generator, wiring, etc.

Good maintenance of the ignition system starts at the battery. A relatively large amount of gasoline is wasted in starting if the battery does not have the capacity to turn the engine over fast enough to make a prompt start. Batteries should be selected for the particular type of operation in which they are to be used, and should be of ample capacity to handle the loads imposed on them.

Spark plugs must be kept under certain heat limits for best operation. Because operating conditions vary, it becomes necessary to provide a variation in heat ranges, and plugs must be selected to meet operating conditions. With the trend to lean air-fuel ratios in engines, wide spark plug gaps are necessary to obtain good starting. There also seems to be some indication of increased fuel economy with wider plug gaps. It has been estimated that worn-out spark plugs waste 1 gallon of gasoline in 10. Plugs should be cleaned and re-gapped every 3000 or 4000 miles if continued service and economical operation is to be expected.

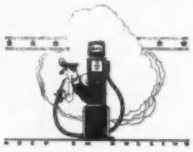
Ignition timing is an important gasoline factor. Since gasoline varies in its octane performance, the ignition should be timed to the fuel being used, rather than to a factory setting for the engine.

Due to the government demand for more 100-octane fuel for planes, tanks, etc., gasoline refiners now find themselves with a restricted amount of tetra-ethyl lead with which to treat their gasoline. This has resulted in a lowering of the octane number for a standard grade of gasoline from 74 to 68-70. Fleet operators will find it necessary to retard the ignition timing 3 to 5 degrees, depending on the compression ratio of their units, to accommodate the lowered octane fuel which will be available to them. This of course means a loss in economy. It is to be emphasized that if an operator does nothing to his units and allows violent detonation to occur, his operating costs are going to be increased by failures in head gaskets, pistons, valves, rings and bearings, and by cylinder wear.

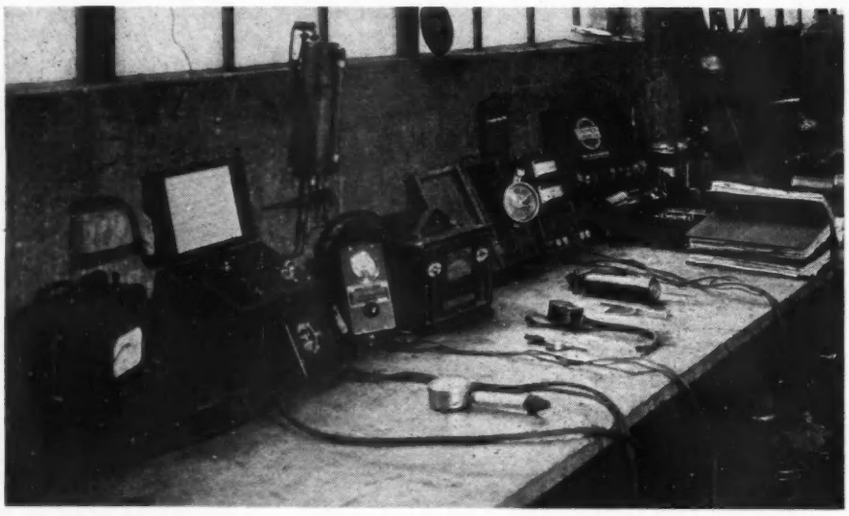
Any of these troubles will still further increase both fuel and oil consumption. With the continued lowering of the octane rating of fuels, operators will notice a lowering of gasoline mileage in their fleet operations. But by a redoubled effort in checking and adjusting all other factors which affect gasoline consumption, they will do much to overcome the loss due to lower octane rating of the fuel available.

Distributor condition is very important to fuel economy and can be checked only with equipment designed for this purpose to the unit manufacturers' standards. The centrifugal and vacuum advance mechanisms on the distributor should be checked for freedom of action. Any sticking of the advance mechanism will result in improper timing and waste of gasoline. The contact points should be replaced if badly burned or pitted. Corroded or burned breaker points will cause loss in power, engine roughness and poor gasoline economy. Coils should be tested with an accurate instrument and when found below specifications should be replaced. A weak coil may not affect the gasoline economy in easy operation, but it will cause erratic operation and low gasoline mileage under hard operating conditions. Condensers should be tested with an adequate instrument and replaced when necessary. A weak condenser will cause burned and pitted breaker points, resulting in poor gasoline economy.

The insulation of the high-tension wiring of the ignition system should be in



GAS SAVING SUGGESTIONS



Pictured are instruments used in checking engine performance: gas analyzer, compression gage, vacuum gage, tachometer, volt meter, coil and condenser tester, synchroscope and carburetor tools

good condition. If it is defective, the high-tension surges produced by the coil and being led to the spark plugs by the cables will leak to ground instead. This will cause missing and hard starting, resulting in poor gasoline economy.

Carburetion

Mixture

Very often truck mixtures are deliberately set rich because of frequent starting and stopping. The operator who does this is laboring under a mistaken impression that it is necessary to get more power. In cases of large overloads it may help some to operate with a rich carburetor mixture but at best a large amount of gasoline is sacrificed to give a relatively small increase in power. An attempt to compensate for overloading by changing the carburetor mixture to the rich side is usually a pretty expensive process. Commercial vehicles should have the idle air-fuel ratio set as lean as possible and still maintain a satisfactory non-stalling idle. Some roughness of the engine may be disregarded since this has no bearing on satisfactory operation of the engine. Maximum economy and maximum power occur at two widely separated points. To get the full measure of one you obviously have to sacrifice some part of the other. The best setting that can be obtained is a compromise. It gives a maximum of economy that can be obtained without an appreciable loss of power. Better fuel economy can be obtained by an over-lean mixture, but with it comes the loss of power at normal operating speeds. With this loss of power comes trouble with spark plugs, valves, pistons and piston rings.

Temperature

The temperature of the gasoline, all the way from the gas tank and gas lines to the bowl of the carburetor, will affect gasoline economy. These parts should be kept as cool as possible, because the loss may amount to from 3 to 10 per cent of the total gasoline. In addition, since the loss is all from the light ends of the fuel, the gasoline actually delivered to the engine may be noticeably less in octane rating than the original gas put into the tank. Keeping the tank protected from the sun, and the gasoline lines cool where they pass the engine, and finally keeping the carburetor bowl as cool as possible, can reduce this gasoline loss.

Float Level

Float levels change during service due to wear, vibration, etc. The level usually becomes higher, causing a richer idle. Careful adjustment of float levels to manufacturers' specifications will increase and hold more constant the gasoline average of a fleet.

Chokes

Chokes are often a source of wasted fuel. Sticking of the cable between the dash and carburetor results in the choke being left in a partially open position. This causes waste of fuel. It is good practice to have a return spring on the choke shaft so that the choke cannot be left in anything but a wide open position. When starting, the driver will have to hold the choke button out until after the engine is started. By proper handling of the choke, and allowing the engine to warm up to operating temperature before starting the truck out on a run, gasoline mileage will be increased.

Air Cleaners

No matter how well the carburetor is maintained, its function can be impaired by a dirty air cleaner. Many air cleaners, now used on most engine carburetors, accumulate some or all of the dirt they separate from the incoming air. As this dirt builds up it has an action similar to closing the choke valve. Both cause restriction and this increases the suction on the carburetor jets. Very little increase in suction is sufficient to create a mixture so rich that it will not only seriously impair engine operation but will also dilute the oil and cause as much wear as dirt. For these reasons air cleaners should be cleaned at regular intervals, at least every 1000 miles, or more often if conditions warrant. Under adverse conditions or extensive operation on dustry or sandy roads, units should be cleaned every day or at least every 200 miles.

Fuel Pumps

Fuel pump pressures must be watched carefully to see that they check with specifications. If the pump pressure is too high, the gasoline will force itself past the carburetor float needle valve, resulting in too rich a mixture from the main carburetor jet. The diaphragm is the cause of most fuel-pump trouble. Porousness or small holes in it will lessen the pump suction. A leaky diaphragm also will cause leakage of gasoline into the oil pan at the point where the pump is fastened to the cylinder block.

Intake Manifolds

All too often intake manifolds are neglected and no attention is paid them unless cracks occur. The manifold is an important part of the engine, and its function is to distribute the air-fuel mixture received from the carburetor to the various cylinders. To keep manifolds in efficient operating condition, the formation of gum deposits should be prevented as much as possible by avoiding gasoline containing excessive gum. Whenever manifolds are removed from the engine for any purpose they should be soaked in a good solvent or burned out with a torch. Excessive gum deposits in the manifolds will affect gasoline economy. Some manifolds are designed to use hot exhaust gases of the engine to insure complete vaporization of the fuel during the warm-up period, thereby using a minimum of fuel. There are several types of manifold heat controls in use. They should be kept in proper condition and adjustment to get maximum gasoline economy.

Mechanical Conditions

Excessive carbon in an engine will cause pre-ignition and loss of power, resulting in an increase of gasoline consumption. Improperly seated valves, leaking rings or scored cylinders will cause loss of compression and power, causing an increase in gasoline consumption.

Brakes

Dragging brakes on a vehicle will not only affect gasoline economy but also will shorten tire life.

Oil

The use of the proper grade of oil affects gasoline consumption materially. As light an oil as possible should be used. This

(Turn to Page 92, Please)

COMMERCIAL CAR JOURNAL

KEEP 'EM ROLLING

MOTOR TRUCK COMPONENT PARTS SPECIFICATION TABLE

A Compilation of Standard Model Data Submitted by Truck Manufacturers

KEEP 'EM ROLLING

KEY TO ABBREVIATIONS AND REFERENCES

GENERAL ABBREVIATIONS

†—Brakes installed by rear axle manufacturer
††—1700 intermediate shaft; 1600 front and rear shaft
†††—1700 shaft from transmission to transfer case, 1600 front shaft, 1700 rear shaft
††††—1700 main shaft, 1700 front and rear shaft
*—1600 shaft with 1¾ in. taper steady bearing.
**—1600 front shaft, 1700 rear shaft
***—1700 front shaft, 1800 rear shaft
****—1600 on shaft from transmission to transfer case, 1500 front and rear shaft
§—1500 intermediate shaft, 1600 front shaft, 1500 rear shaft
§§—1600 intermediate shaft, 1700 front and rear shaft
§§§—1700 intermediate shaft, 1700 front shaft, 1800 rear shaft
●—1700 main shaft, 1600 intermediate shaft
▲—With Autocar A2 auxillary transmission
(1)—With Timken-Wisconsin T2 transfer case
(2)—With Timken-Wisconsin T7 transfer case
(3)—With Fuller 3A86 auxillary transmission
(4)—Starter only
(5)—Fuller 5A330 or 5B330 and Spicer 2353
(6)—Fuller 5A620 and Spicer 5351
(7)—56411, 76411 or 96411
(8)—76793 or 76810
(9)—720 or T-70
(10)—720 or T-71
(11)—T710 or T-71
(12)—Marmon-Herrington number
(13)—5A620 and 2A62
(14)—Eaton number 1475
(15)—Eaton number 1350
(16)—Eaton number 1460
(17)—1500 front, 1410 rear
(18)—1600 front, 1500 rear
(19)—267380 stand; 267373 sit
(20)—Front, Clark or Dayton; rear, Dayton
(21)—Hercules JXC or Waukesha BK
(22)—Hercules JXD or Waukesha BZ
(23)—Hercules WXC3 or Waukesha MZR
(24)—Hercules RXLD or Waukesha BRKR
(25)—5A430 with 2A62 auxillary
(26)—5A620 with 3A86 auxillary
(27)—1500 front, 1600 rear
(28)—1400 front, 1500 rear and intermediate axle
(29)—1500 front, rear and intermediate axle
(30)—1600 front and rear, 1700 intermediate axle.

Com—Commercial type
(c.o.e.)—Cab-over-engine
(D)—Diesel engine equipped
(e.u.s.)—Engine under seat
NS—Not standard
(T)—Tractor

MAKES OF UNITS

A-A—Air Auto
A-B—Atwood with Borg & Beck disc
AC—AC Spark Plug Division
AL—Electric Auto-Lite Co.
AL-CH—Auto-Lite or Champion
AM—Air-Maze Corp.
A-U—Auto-Lite or U. S. L.
Aup—Autopulse Corp.

B&B—Borg & Beck Division
B-D—Budd or Dayton
Bdd—Budd Wheel Co.
Ben—Bendix Products Division
BK—Bendix B-K (Bendix Products Division)
BL—Brown-Lipe (Spicer Mfg. Corp.)
Bld—Blood Bros.
Bm—Bendix, mechanical
B-M—Budd or Motor Wheel
Bos—Bosch (American Bosch Corp.)
B-S—Borg & Beck or Spicer
Bud—Buda Co.

Car—Carter Carburetor Corp.
C-D—Clark or Dayton
C-E—Chevrolet and Eaton
CH—Champion Spark Plug Co.
Cha—Champion (Champ Spring Co.)
Che—Chevrolet Motor Division
Cla—Clark Equipment Co.
C-O—Chevrolet and Own
Con—Continental Motors Corp.
CS—Cleveland Steel Products
CSB—Chevrolet, Spicer and Blood
C-T—Chevrolet and Thornton
Cum—Cummins Engine Co.
C-W—Chevrolet and Watson

Day—Dayton Steel Foundry Co.
D-B—Dayton cast sprocket and Budd disc optional
DeL—De Luxe Products Corp.
Det—Detroit Steel
DF—Duo-Flo
Don—Donaldson Co.
D-P—De Luxe or Purolator
DR—Delco-Remy Division
D-S—Delco-Remy and Scintilla

Eat—Eaton Mfg. Co.
Ecy—Economy
ESP—Eaton and Spring Perch
ESS—Eaton. Spring Perch and Standard Steel
E-T—Eaton and Truxmore
Exi—Exide (Electric Storage Battery Co.)
Exl—Excel Auto Radiator Co.

Fed—Fedders Mfg. Co.
F-O—Ford and Own
Frd—Ford Motor Co.
F-S—Fuller and Spicer
FSB—Fuller, Spicer and Blood
F-T—Ford and Thornton
F-Tm—Ford and Timken
Ful—Fuller Mfg. Co.
FW—Firestone and Willard
FWD—Four Wheel Drive Auto Co.

Gbe—Globe-Union, Inc.
Gem—Gemmer Mfg. Co.
Gun—Gunite

Han—Handy (King-Seeley Corp.)
Har—Harrison Radiator Division
Her—Hercules Motor Corp.
Hof—Hoof Products Co.
HW—Hall Winslow
HW—H-W Filter (Michiana Products Corp.)
H-W—Hercules or Waukesha

Inl—Inland Mfg. Division

Jms—Jamestown Metal Equipment Co.

KH—Kelsey-Hayes Wheel Co.

LBK—Lockheed, BK Booster
L-D—Leese Neville Starter, Delco-Remy generator
Lei—Leibing
LN—Leece-Neville Co.
Lng—Long Mfg. Division
Loc—Lockheed (Wagner Electric Corp.)
LV—Lockheed with vacuum booster

Mar—Maremont Automotive Products, Inc.
Mat—Mather Spring Co.
McC—McCord Radiator & Mfg. Co.
Mec—Mechanics Universal Joint Division
M-F—Front Mechanics, Rear Ford 01Y
Mic—Michiana Products Corp.
Mid—Midland Steel Products Co.
Mil—Miller Tool & Mfg. Co.
Mod—Modine Mfg. Co.
Mon—Monarch Governor Co.
MW—Motor Wheel Corp.

Nat—National Battery Co.
Nug—Nugent

OPT—Optional
O-K—Own or Kelsey-Hayes
O-S—Own or Spicer

Par-Parish (Spicer Mfg. Corp.)
Pce—Pierce Governor Co.
Pfx—Perfex
PL—Prest-O-Lite Battery Co.
Pur—Purolator Products, Inc.
P-Y—Perfex or Young

RB—Rockford with Borg & Beck disc
Ro—Ross Gear & Tool Co.
Roe—Roehlk

Sag—Saginaw Steering Gear Division
S-B—Smith or Budd
Scn—Scintilla Magneto Division
Shu—Shuler Axle Co.
S-F—Spicer or Fuller
SP—Spring Perch
Spi—Spicer Mfg. Corp.
SS—Standard Steel Spring Co.
Str—Stromberg Carburetor Division
SW—Stewart-Warner

Thn—Thornton
T-S—True-Stop (American Chain and Cable
Tim—Timken Detroit Axle Co.
Tut—Tuthill Spring Co.

Uni—United Air Cleaner Division
UP—Universal Products Co.

Wag—Wagner Electric Corp.
War—Warner Gear Division
Wau—Waukesha Motor Co.
WCL—W. C. Lipe
W-E—Willard or Exide
Wes—Westinghouse air (Bendix-Westinghouse Automotive Air Brake Co.)
WCL—W. C. Lipe (Lipe-Rollway Corp.)
Wil—Willard Storage Battery Co.
Wis—Wisconsin (Timkin-Detroit Axle Co.)

Yat—Yates
Yng—Young Radiator Co.
YS—Youngstown Steel Co.

Zen—Zenith Carburetor Division

Line Number	TRUCK MAKE AND MODEL NUMBER	POWER PLANT							RADIATOR	ELECTRICAL EQUIPMENT				TRANSMISSION LINE			RUNNING GEAR						SPRINGS	FRAME
		ENGINE Make and Model	Governor Make—(If Standard)	Air Cleaner Make (If Standard)	Oil Filter Make (If Standard)	CARBURETOR Make and Model Number	Fuel Feed System Make		Radiator Make	Ignition System Make	Generator—Starter Make	Battery—Make	SPARK PLUG Make and Model	CLUTCH Make and Model Number	TRANSMISSION Make and Model Number	UNIVERSALS Make and Model Number	FRONT AXLE Make and Model Number	REAR AXLE Make and Model Number	STEERING GEAR Make and Model Number	Service Brakes Make of Actuation	Hand Brakes Make of Actuation	Brake Drum Make	Wheels—Make	Springs—Make	Frame—Make
1	Autocar C-10	Her JXB	Han	Uni	Mic	Zen 455-2	AC	G&O	AL	AL	Exi	CH 0-Com	Lng 11CF-CL	Cla 185-F	Spi 1410	Tim 31013	Tim 54412	Ro T-21	Tim†	Cla	Day	Day	SP	Own
2	(c.o.e.) U-10	Her JXB	Han	Uni	Mic	Zen 455-2	AC	G&O	AL	AL	Exi	CH 0-Com	Lng 11CF-CL	Cla 185-F	Spi 1410	Tim 32502	Tim 54412	Ro T-70	Tim†	Cla	Day	Day	SP	Own
3	(T) C-10-T	Her JXB	Han	Uni	Mic	Zen 455-2	AC	G&O	DR	DR	Exi	CH 0-Com	Lng 11CF-CL	Cla 185-F	Spi 1410	Tim 31013	Tim 54412	Ro T-21	Tim†	Cla	Day	Day	SP	Own
4	(c.o.e.) U-10-T	Her JXB	Han	Uni	Mic	Zen 455-2	AC	G&O	DR	DR	Exi	CH 0-Com	Lng 11CF-CL	Cla 185-F	Spi 1410	Tim 32502	Tim 54412	Ro T-70	Tim†	Cla	Day	Day	SP	Own
5	C-20	Her JXC	Han	Uni	Mic	Zen 455-2	AC	G&O	AL	AL	Exi	CH 0-Com	Lng 11CF-CL	Cla 200-VO	Spi 1410	Tim 31015	Tim 56410	Ro TA-21	Tim†	Cla	Day	Day	SP	Own
6	(c.o.e.) U-20	Her JXC	Han	Uni	Mic	Zen 455-2	AC	G&O	AL	AL	Exi	CH 0-Com	Lng 11CF-CL	Cla 200-VO	Spi 1410	Tim 32502	Tim 56410	Ro T-70	Tim†	Cla	Day	Day	SP	Own
7	(T) C-20-T	Her JXC	Han	Uni	Mic	Zen 455-2	AC	G&O	DR	DR	Exi	CH 0-Com	Lng 11CF-CL	Cla 200-VO	Spi 1410	Tim 31015	Tim 56410	Ro TA-21	Tim†	Cla	Day	Day	SP	Own
8	(T) (c.o.e.) U-20-T	Her JXC	Han	Uni	Mic	Zen 455-2	AC	G&O	DR	DR	Exi	CH 0-Com	Lng 11CF-CL	Cla 200-VO	Spi 1410	Tim 32502	Tim 56410	Ro T-70	Tim†	Cla	Day	Day	SP	Own
9	C-30	Own 331	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	Lng 12CB-C	Cla 200-VO	Spi 1500	Tim 32502	Tim 56400	Ro T-70	Tim†	Cla	Day	Day	SP	Own
10	(c.o.e.) U-30	Own 331	Han	Uni	WGB	Str SF-3	AC	G&O	DR	DR	Exi	CH 8-Com	Lng 12CB-C	Cla 200-VO	Spi 1500	Tim 35000	Tim 56400	Ro T-70	Tim†	Cla	Day	Day	SP	Own
11	(T) C-30-T	Own 331	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	Lng 12CB-C	Cla 200-VO	Spi 1500	Tim 32502	Tim 56400	Ro T-70	Tim†	Cla	Day	Day	SP	Own
12	(T) (c.o.e.) U-30-T	Own 331	Han	Uni	WGB	Str SF-3	AC	G&O	DR	DR	Exi	CH 8-Com	Lng 12CB-C	Cla 200-VO	Spi 1500	Tim 32502	Tim 56400	Ro T-70	Tim†	Cla	Day	Day	SP	Own
13	C-40	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own RL-5	Spi 1500	Tim 32502	Own RC	Ro T-70	Own†	Own	Day	Day	SP	Own
14	(c.o.e.) U-40	Own 377	Han	Uni	WGB	Str SF-3	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own URL-5	Spi 1500	Tim 35000	Own RC	Ro T-70	Own†	Own	Day	Day	SP	Own
15	(T) C-40-T	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WLC 248-S	Own RL-5	Spi 1500	Tim 32502	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
16	(T) (c.o.e.) U-40-T	Own 377	Han	Uni	WGB	Str SF-3	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own URL-5	Spi 1500	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
17	C-40-D	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own RL-5	Spi 1500	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
18	(c.o.e.) U-40-D	Own 377	Han	Uni	WGB	Str SF-3	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own URL-5	Spi 1500	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
19	(D) (T) DC-50-T	Cum AA600	Cum		Cum		Cum	G&O	LN	LN	Exi		LO 12CB-C	Own RL-5	Spi 1600	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
20	(T) C-50-T	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own DF-5	Spi 1600	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
21	C-50-D	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Ful 5A43	Spi 1600	Tim 35000	Own F	Ro T-70	Own†	Own	Day	Day	SP	Own
22	C-60	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own DF-5	Spi 1600	Tim 35000	Own E	Ro T-71	Own†	Own	Day	Day	SP	Own
23	(e.u.s.) U-60	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own UDF-5	Spi 1600	Tim 35100	Own E	Ro T-71	Own†	Own	Day	Day	SP	Own
24	(T) C-60-T	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own DF-5	Spi 1600	Tim 35000	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
25	(T) (e.u.s.) U-60-T	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own UDF-5	Spi 1600	Tim 35000	Own C	Ro T-71	Own†	Own	Day	Day	SP	Own
26	(e.u.s.) U-60-D	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own UDF-5	Spi 1600	Tim 27452	Own C	Ro T-71	Own†	Own	Day	Day	SP	Own
27	C-70	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own DF-5	Spi 1600	Tim 35100	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
28	(e.u.s.) U-70	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL 248-S	Own UDF-5	Spi 1600	Tim 27452	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
29	(T) C-70-T	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own DF-5	Spi 1600*	Tim 35000	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
30	(T) (e.u.s.) U-70-T	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UDF-5	Spi 1600*	Tim 35000	Own C	Ro T-71	Own†	Own	Day	Day	SP	Own
31	C-70-D	Own 408	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own DF-5	Spi 1600	Tim 35000	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
32	C-80	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own TF-5	Spi 1600*	Tim 35100	Own TG	Ro T-71	Own†	Own	Day	Day	SP	Own
33	(e.u.s.) U-80	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi 1600*	Tim 27452	Own TG	Ro T-74	Own†	Own	Day	Day	SP	Own
34	(T) C-80-T	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi 1600*	Tim 35000	Own TG	Ro T-71	Own†	Own	Day	Day	SP	Own
35	(T) (e.u.s.) U-80-T	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi 1600*	Tim 27452	Own CG	Ro T-71	Own†	Own	Day	Day	SP	Own
36	C-80-D	Own 447	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5^	Spi **	Tim 27452	Own G	Ro T-74	Own†	Own	Day	Day	SP	Own
37	(e.u.s.) U-80-D	Own 447	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Ful F-5A62	Spi 1600*	Tim 27452	Own G	Ro T-74	Own†	Own	Day	Day	SP	Own
38	C-90	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi 1700	Tim 27452	Own TG	Ro T-74	Own†	Own	Day	Day	SP	Own
39	(e.u.s.) U-90	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi 1700	Tim 27452	Own TG	Ro 760	Own†	Own	Day	Day	SP	Own
40	(T) C-90-T	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi 1700	Tim 35100	Own TG	Ro T-71	Own†	Own	Day	Day	SP	Own
41	(T) (e.u.s.) U-90-T	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi 1700	Tim 27452	Own CG	Ro T-71	Own†	Own	Day	Day	SP	Own
42	C-90-D	Own 501	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5^	Spi 1700	Tim 27452	Tim 79746-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
43	(e.u.s.) U-90-D	Own 501	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Ful F-5A62	Spi 1700	Tim 27452	Tim 79745-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
44	(D) (T) DC-100-T	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7451	Spi 1700	Tim 27452	Own G	Ro T-71	Own†	Own	Day	Day	SP	Own
45	(D) (T) (e.u.s.) DU-100-T	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7451	Spi 1700	Tim 27452	Own G	Ro T-74	Own†	Own	Day	Day	SP	Own
46	(D) DC-100-D	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7451^	Spi ***	Tim 27452	Tim 79745-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
47	C-7044	Own 447	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own DF-4 (1)	Spi ****	Tim F-223-H	Tim 72300-TM	Ro T-71	Tim†	Own	Day	Day	SP	Own
48	C-8044	Own 501	Han	Don	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-4 (2)	Spi ††	Tim F-323-H	Tim 75746-TM	Ro T-74	Tim†	Own	Day	Day	SP	Own
49	C-9044	Her HXB	Han	Don	HW	Zen 458	AC	G&O	DR	DR	Exi	CH 2-Com	BL 14-2	BL 7441 (2)	Spi †††	Tim F-437-W	Tim 76740-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
50	DC-10044	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7441 (2)	Spi ††††	Tim F-437-W	Tim 76740-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
51	C-4062	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own RL-5	Spi 1500	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
52	(c.o.e.) U-4062	Own 377	Han	Uni	WGB	Str SF-3	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own URL-5	Spi 1500	Tim 35000	Own E	Ro T-70	Own†	Own	Day	Day	SP	Own
53	C-4064	Own 377	Han	Uni	WGB	Zen 28ADA10	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own RL-5	Spi §	Tim 35100	Tim SBD1500	Ro T-70	Tim†	Own	Day	Day	SP	Own
54	C-7062	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own DF-5	Spi 1600	Tim 35100	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
55	(e.u.s.) U-7062	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own UDF-5	Spi 1600	Tim 35100	Own F	Ro T-71	Own†	Own	Day	Day	SP	Own
56	C-7064	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own DF-5	Spi §	Tim 35100	Tim SBD1500	Ro T-71	Own†	Own	Day	Day	SP	Own
57	(e.u.s.) U-7064	Own 408	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-48-S	Own UDF-5	Spi §	Tim 35100	Tim SBD1500	Ro T-71	Own†	Own	Day	Day	SP	Own
58	C-8062	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi 1600*	Tim 27452	Own TG	Ro T-71	Own†	Own	Day	Day	SP	Own
59	(e.u.s.) U-8062	Own 447	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi 1600*	Tim 27452	Own TG	Ro T-74	Own†	Own	Day	Day	SP	Own
60	C-8064	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi §§	Tim 27452	Tim SDP3000-PA	Ro T-74	Tim†	Own	Day	Day	SP	Own
61	(e.u.s.) U-8064	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi §§	Tim 27452	Tim SDD3000-PA	Ro T-74	Tim†	Own	Day	Day	SP	Own
62	C-9062	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi 1700^	Tim 27452	Own CG	Ro T-74	Own†	Own	Day	Day	SP	Own
63	(e.u.s.) U-9062	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi 1700^	Tim 27452	Own CG	Ro T-74	Own†	Own	Day	Day	SP	Own

64		C-9064	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own TF-5	Spi §§▲	Tim 27452	Tim SDD454-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
65	(e.u.s.)	U-9064	Own 501	Han	AM	WGB	Str SF-4	AC	G&O	DR	DR	Exi	CH 8-Com	WCL Z-32-S	Own UTF-5	Spi §§	Tim 27452	Tim SDD454-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
66	(D)	DC-10062	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7451	Spi 1700▲	Tim 27452	Own G	Ro T-71	Own†	Own	Day	Day	SP	Own
67	(D) (e.u.s.)	DU-10062	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7451	Spi 1700	Tim 27452	Own G	Ro T-74	Own†	Own	Day	Day	SP	Own
68	(D)	DC-10064	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7441	Spi §§§ (3)	Tim 27452	Tim SD462-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
69	(D) (e.u.s.)	DU-10064	Cum HB600	Cum	Don	Nug		Cum	G&O	DR	DR	Exi		BL 14-2	BL 7451	Spi ●	Tim 27452	Tim SDD454-W	Ro T-74	Tim†	Own	Day	Day	SP	Own
70	Available	C-100	Wau BL	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	War T-9	Spi 1410	Tim 30000H	Tim 53508H	Ro 660	Loc	War	Day	Day	Tut	Own
71		C-200	Wau BL	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	War T-9	Spi 1410	Tim 30000H	Tim 53308H	Ro 660	Loc	War	Day	Day	Tut	Own
72		C-250	Wau BL	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	War T-9	Spi 1410	Tim 31000H	Tim 53308H	Ro 660	Loc	War	Day	Day	Tut	Own
73		C-300	Wau BM	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	War T-9	Spi 1410	Tim 31000H	Tim 54410H	Ro 660	Loc	War	Day	Day	Tut	Own
74		C-350	Wau BK	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	War T-9A	Spi 1500	Tim 32502H	Tim 54410H	Ro 700	Loc	War	Day	Day	Tut	Own
75		C-400	Wau BK	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	War T-9A	Spi 1500	Tim 32502H	Tim 55410H	Ro 700	Loc	War	Day	Day	Tut	Own
76	...	C-400L	Wau BZ	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	Ful 5A330	Spi 1500	Tim 32502H	Tim 56410H	Ro 700	Loc	Ful	Day	Day	Tut	Own
77		C-500	Wau BZ	NS	Uni	Fram	Str BXUV-3	AC	Yat	DR	DR	Exi	AC 85	B&B	Ful 5A330	Spi 1500	Tim 33000H	Tim 58300H	Ro 700	Loc	Ful	Day	Day	Tut	Own
78		C-550	Wau MKR	Wau	Uni	Fram	Str SF-3	Aup	Yat	DR	DR	Exi	AC 87S	B&B	Ful 5A430	Spi 1600	Tim 35000H	Tim 58300H	Ro 700	Loc	Ful	Day	Day	Tut	Own
79		C-600	Wau MZR	Wau	Uni	Fram	Str SF-3	Aup	Yat	DR	DR	Exi	AC 87S	B&B	Ful 5A430	Spi 1600	Tim 35000H	Tim 65720H	Ro 720	Loc	Ful	Day	Day	Tut	Own
80		C-650	Wau SRLR	Wau	Uni	Fram	Str SF-4	Aup	Yat	DR	DR	Exi	AC 78	B&B	Ful 5A620	Spi 1600	Tim 35000H	Tim 65720H	Ro 720	Loc	Ful	Day	Day	Tut	Own
81		C-700	Wau SRKR	Wau	Uni	Fram	Str SF-4	Aup	Yat	DR	DR	Exi	AC 78	B&B	Ful 5A620	Spi 1600	Tim 26452H	Tim 66742H	Ro 720	Loc	Ful	Day	Day	Tut	Own
Brockway *(see page 251)*																									
82	Chevrolet-1942	BK	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
83		BJ	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
84		BL	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
85		BN	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
86		MR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
87		MR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
88		MR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
89		MR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
90		MR	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
91		MR	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
92		MS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
93		MS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
94		MS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
95		MS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
96		MS	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
97		MS	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
98	(c.o.e.)	MU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
99	(c.o.e.)	MU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
100	(c.o.e.)	MU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
101	(c.o.e.)	MU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
102	(c.o.e.)	MU	Own		AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
103	(c.o.e.)	MU	Own		AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
104	(c.o.e.)	MV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
105	(c.o.e.)	MV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
106	(c.o.e.)	MV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
107	(c.o.e.)	MV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
108	(c.o.e.)	MV	Own		AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
109	(c.o.e.)	MV	Own		AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
110	(c.o.e.)	MW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
111	(c.o.e.)	MW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
112	(c.o.e.)	MW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
113	(c.o.e.)	MW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
114	(c.o.e.)	MW	Own		AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
115	(c.o.e.)	MW	Own		AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
116	Chevrolet-1941	AK	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
117		AJ	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
118		AL	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
119		AN	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
120		YR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
121		YR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
122		YR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
123		YR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
124		YR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
125		YR	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
126		YR	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
127		YR	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
128		YS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
129		YS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
130		YS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
131		YS	Own	NS	AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
132		YS	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
133		YS	Own		AC	AC	Car 483S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
134	(c.o.e.)	YU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
135	(c.o.e.)	YU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B

Continued on next page

Line Number	TRUCK MAKE AND MODEL NUMBER	POWER PLANT							ELECTRICAL EQUIPMENT				TRANSMISSION LINE			RUNNING GEAR								
		ENGINE Make and Model	Governor Make—(If Standard)	Air Cleaner Make (If Standard)	Oil Filter Make (If Standard)	CARBURETOR Make and Model Number	Fuel Feed System Make	Radiator Make	Ignition System Make	Generator—Starter Make	Battery—Make	SPARK PLUG Make and Model	CLUTCH Make and Model Number	TRANSMISSION Make and Model Number	UNIVERSALS Make and Model Number	FRONT AXLE Make and Model Number	REAR AXLE Make and Model Number	STEERING GEAR Make and Model Number	Service Brakes Make of Actuation	Hand Brakes Make of Actuation	Brake Drum Make	Wheels—Make	Springs—Make	Frame—Make
	Chevrolet 1941—Continued																							
1	(c.o.e.) YU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
2	(c.o.e.) YU	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
3	(c.o.e.) YU	Own	.....	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
4	(c.o.e.) YU	Own	.....	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
5	(c.o.e.) YV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
6	(c.o.e.) YV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
7	(c.o.e.) YV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
8	(c.o.e.) YV	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
9	(c.o.e.) YV	Own	.....	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
10	(c.o.e.) YV	Own	.....	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
11	(c.o.e.) YW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
12	(c.o.e.) YW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
13	(c.o.e.) YW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
14	(c.o.e.) YW	Own	NS	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
15	(c.o.e.) YW	Own	.....	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
16	(c.o.e.) YW	Own	.....	AC	AC	Car 517S	AC	Har	DR	DR	DR	AC 104	Own	Own	O-S	Own	Own	Sag	Own	Own	Own	O-K	Own	S-B
17	Dart 40G	OPT (21)	Hoof	Uni	Ecy	Str EVX2	AC	Mod	DR	DR	F-W	AC 75	WCL Z30S	Ful 5A330	Spi 1400	Tim 31005H	Tim 54412H	Ro 660	LBK	Ful	Tim	B-D	Mar	Own
18	50G	OPT (22)	Hoof	Uni	Ecy	Str EVX2	AC	Mod	DR	DR	F-W	AC 75	WCL Z30S	Ful 5A330	Spi 1400	Tim 32502H	Tim 56411H	Ro 660	LBK	Ful	Tim	B-D	Mar	Own
19	50Gsp	OPT (23)	Hoof	Don	Ecy	Zen IN167	AC	Mod	DR	DR	F-W	AC 85	WCL Z32S	Ful 5A430	Spi 1500	Tim 32502H	Tim 56411H	Ro 660	LBK	Ful	Tim	B-D	Mar	Own
20	60G	OPT (23)	Hoof	Uni	Ecy	Zen IN167	AC	Mod	DR	DR	F-W	AC 85	WCL Z32S	Ful 5A430	Spi (27)	Tim 33000H	Tim 58300H	Ro 700	LBK	Ful	Tim	B-D	Mar	Own
21	70DR	OPT (23)	Hoof	Don	Ecy	Str SF-3	AC	Mod	DR	DR	F-W	AC 85	WCL Z32S	Ful (25)	Spi (27)	Tim 33000H	Tim 75733H	Ro 720	LBK	Ful	Tim	B-D	Mar	Own
22	80W	OPT (24)	Hoof	Uni	Ecy	Str SF-4	AC	Mod	DR	DR	F-W	AC 85	WCL Z31S	Ful 5A620	Spi 1600	Tim 35000H	Tim 65725H	Ro 720	LBK	Ful	Tim	B-D	Mar	Own
23	100W	OPT (24)	Hoof	Don	Ecy	Str SF-4	AC	Mod	DR	DR	F-W	AC 85	WCL Z31S	Ful 5A620	Spi 1600	Tim 27450H	Tim 66725H	Ro 720	LBK	Ful	Tim	B-D	Mar	Own
24	1000	OPT (22)	Hoof	Uni	Ecy	Str EVX2	AC	Mod	DR	DR	F-W	AC 75	WCL Z30S	Ful 5A330	Spi (28)	Tim 31005H	Tim SBD1000	Ro 660	LBK	Ful	Tim	B-D	Mar	Own
25	1500	OPT (23)	Hoof	Uni	Ecy	Zen IN167	AC	Mod	DR	DR	F-W	AC 85	WCL Z32S	Ful 5A430	Spi (29)	Tim 33000H	Tim SBD1500	Ro 700	LBK	Ful	Tim	B-D	Mar	Own
26	252	OPT (23)	Hoof	Uni	Ecy	Str SF-3	AC	Mod	DR	DR	F-W	AC 85	WCL Z32S	Ful (25)	Spi (27)	Tim 35000H	Tim SD252H	Ro 720	LBK	Ful	Tim	B-D	Mar	Own
27	352	OPT (24)	Hoof	Don	Ecy	Str SF-4	AC	Mod	DR	DR	F-W	AC 85	WCL Z31S	Ful (26)	Spi (30)	Tim 27450TW	Tim SD452W	Ro 720	Wes	T-S	Tim	B-D	Mar	Own
28	Dodge WC	Own T112	NS	Uni	NS	Car DTC-1	AC	Fed	AL	AL	AL	AL A-7-A	B&B 11260	Own	UP 4200	Own	Own	Gem 120	Own	Own	Own	.....	.....	.....
29	WD-15	Own T114	NS	Uni	NS	Car DTC-1	AC	Fed	AL	AL	AL	AL A-7-A	B&B 11260	Own	UP 4200	Own	Own	Gem 120	Own	Own	Own	.....	.....	.....
30	WD-20	Own T116	NS	Uni	NS	Str 280082	AC	Fed	AL	AL	AL	AL A-7-A	B&B 11260	Own	UP 5160	Own	Own	Gem 120	Own	Own	Own	.....	.....	.....
31	WF-20	Own T118	NS	Uni	NS	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 11296	Own	CS R-96	Own	Own	Gem 140	Own	Own	Own	.....	.....	.....
32	WF-30	Own T118	NS	Uni	NS	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 11296	Own	CS R-96	Own	Own	Gem 140	Own	Own	Own	.....	.....	.....
33	WFA-30	Own T118	NS	Uni	NS	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 11296	Own	CS R-96	Own	Eat	Gem 140	Own	Own	Own	.....	.....	.....
34	(c.o.e.) WFM-35	Own T128	NS	Uni	NS	Car 6E-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 11296	Own	CS R-96	Own	Own	Gem 140	Own	Own	Own	.....	.....	.....
35	(c.o.e.) WFMA-35	Own T128	NS	Uni	NS	Car 6E-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 11296	Own	CS R-96	Own	Eat	Gem 140	Own	Own	Own	.....	.....	.....
36	WG-40	Own T120	Han	Uni	Pur	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Own	Gem 140	Own	Own	Own	.....	.....	.....
37	WGA-40	Own T120	Han	Uni	Pur	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Eat	Gem 140	Own	Own	Own	.....	.....	.....
38	(c.o.e.) WGM-40	Own T130	Han	Uni	Pur	Car 6E-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Own	Gem 170	Own	Own	Own	.....	.....	.....
39	(c.o.e.) WGMA-40	Own T130	Han	Uni	Pur	Car 6E-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Eat	Gem 170	Own	Own	Own	.....	.....	.....
40	WH-45	Own T120	Han	Uni	Pur	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Own	Gem 140	Own	Own	Own	.....	.....	.....
41	WHA-45	Own T120	Han	Uni	Pur	Car ETT-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Eat	Gem 140	Own	Own	Own	.....	.....	.....
42	(c.o.e.) WHM-45	Own T130	Han	Uni	Pur	Car 6E-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Own	Gem 170	Own	Own	Own	.....	.....	.....
43	(c.o.e.) WHMA-45	Own T130	Han	Uni	Pur	Car 6E-1	AC	Fed	AL	AL	Wil	AL A-7-A	B&B 10939	Own	UP 5360	Own	Eat	Gem 170	Own	Own	Own	.....	.....	.....
44	WL-50	Own T124	Han	Uni	D-P	Str 3-56	AC	Lng	AL	AL	Wil	CH J-8-64	B&B 11122	Own	CS U-96	Own	Own	Gem 170	Own	Own	Own	.....	.....	.....
45	WLA-50	Own T124	Han	Uni	D-P	Str 3-56	AC	Lng	AL	AL	Wil	CH J-8-64	B&B 11122	Own	CS U-96	Own	Eat	Gem 170	Own	O::n	Own	.....	.....	.....
46	(D) WLD-50	Own T126	NS	AC	Pur	.....	Exl	Lng	.....	AL(4)	Wil	.....	B&B 11122	Own	CS U-96	Own	Own	Gem 170	Own	Own	Own	.....	.....	.....
47	(D) WLDA-50	Own T126	NS	AC	Pur	.....	Exl	Lng	.....	AL(4)	Wil	.....	B&B 11122	Own	CS U-96	Own	Eat	Gem 170	Own	Own	Own	.....	.....	.....
48	WK-60	Own T124	Han	Uni	D-P	Str 3-56	AC	Lng	AL	AL	Wil	CH J-8-64	B&B 11122	Own	CS U-96	Own	Own	Gem 170	Own	Own	Own	.....	.....	.....
49	WKA-60	Own T124	Han	Uni	D-P	Str 3-56	AC	Lng	AL	AL	Wil	CH J-8-64	B&B 11122	Own	CS U-96	Own	Eat	Gem 170	Own	Own	Own	.....	.....	.....
50	(D) WKD-60	Own T126	NS	AC	Pur	.....	Exl	Lng	.....	AL(4)	Wil	.....	B&B 11122	Own	CS U-96	Own	Own	Gem 170	Own	Own	Own	.....	.....	.....
51	(D) WKDA-60	Own T126	NS	AC	Pur	.....	Exl	Lng	.....	AL(4)	Wil	.....	B&B 11122	Own	CS U-96	Own	Eat	Gem 170	Own	Own	Own	.....	.....	.....
52	Duplex T	Her JXD	Pce	AM	Mic	Zen 28AV11	AC	Pfx	AL	AL	Wil	AL-CH	B-S	F-S (5)	Spi 1400	Tim 32500	Tim (7)	Ro T-26	Loc	S-F	Ful	MW	Tut	Mid
53	SC	Bud K-369	Pce	AM	Mic	Str DX3	AC	Yng	AL	AL	Wil	AL-CH	Spi SP-13	Spi 3353	CS U-94	Shu 5582	Wie 72300H	Ro 700	Loc	T-S	Spi	MW	Tut	Mid
54	SAC	Bud K-428	Pce	AM	DeL	Str DX4	AC	P-Y	AL	AL	Wil	AL-CH	Spi SP-13	Spi 3353	Spi 1600	Shu 5582	Tim 75743	Ro 700	Loc	T-S	Tim	MW	Tut	Mid
55	SAC-H	Her YXC-2	Pce	AM	DeL	Zen IN167SJ	AC	P-Y	AL	AL	Wil	AL-CH	Spi SP-14	Spi 3353	Spi 1600	Shu 5582	Tim 75743	Ro (9)	Loc	T-S	Tim	MW	Tut	Mid
56	K	Bud L-525	Pce	AM	DeL	Str DX4	AC	Yng	AL	AL	Wil	AL-CH	Spi SP-14	F-S (6)	Spi 1600	Shu 639	Tim (8)	Ro (10)	Loc	T-S	Tim	MW	Tut	Mid
57	K-H	Her RXC	Pce	AM	DeL	Zen IN167SJ	AC	P-Y	AL	AL	Wil	AL-CH	Spi SP-14	F-S (6)	Spi 16-1700	Shu 639	Tim (8)	Ro (11)	Loc	Own	Tim	MW	Tut	Mid
58	L	Bud LO-525	Pce	AM	Mic	Str DX4	AC	Yng	AL	AL	Wil	AL-CH	Spi SP-14	Spi 7341	Spi 1600	Shu 639	Tim 79733	Ro 720	Wes	T-S	Tim	MW	Tut	Mid
59	Federal 8	Her QXB3F	NS	AC	NS	Zen 0-9008	AC	Lng	DR	DR	AL	AC 44	B&B A7	War T9	Spi 1300	Tim 29500H	Tim 51521H	Gem 120	Loc	War	Tim	Day	Mat	Own
60	16	Her JXFF	NS	AC	NS	Zen 0-9023	AC	Lng	DR	DR	Exi	AC 44	B&B A7	War T9	Spi 1350	Tim 30000H	Tim 53547H	Gem 140	Loc	War	Tim	Day	Mat	Own
61	17	Her JXGF	Zen	AC	Pur	Zen 0-9450	AC	Lrg	DR	DR	Exi	AC 44	B&B A6	War T9	Spi 1350	Tim 30000H	Tim 53308H	Gem 140	Loc	War	Tim	Day	Mat	Own

62		19	Her JXBF	Zen	AC	Pur	Zen 0-9450	AC	Lng	DR	DR	Exi	AC 44	B&B A6	War T9	Spi 1350	Tim 30003H	Tim 53308H	Gem 335	LBK	War	Tim	Day	Mat	Own
63		20	Her JXBF	Zen	Uni	Pur	Zen 0-9450	AC	Lng	DR	DR	Exi	AC 44	B&B A6	War T9	Spi 1400	Tim 31000H	Tim 54411H	Gem 370	LBK	War	Tim	Day	Mat	Own
64		25	Her JXCF	Zen	Uni	Pur	Zen 0-9450	AC	Lng	DR	DR	Exi	AC 44	B&B A6	Cla 185F	Spi 1400	Tim 31000H	Tim 55411H	Gem 370	LBK	Cla	Tim	Day	Mat	Own
65		29	Her JXDF	Zen	Uni	Pur	Zen 0-9503	AC	Lng	DR	DR	Exi	AC 44	B&B 12Q	Cla 205V	Spi 1500	Tim 32514H	Tim 56411H	Gem 370	LBK	Cla	Tim	Day	SP	Own
66		35	Her WXC3	Zen	Uni	Mic	Zen 0-9780	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 205V	Spi 1500	Tim 32515H	Tim 56411H	Gem 370	LBK	Cla	Tim	Day	SP	Own
67		45	Her WXLC3	Zen	Uni	Mic	Zen 0-9747	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1500	Tim 33006H	Tim 58301H	Ro 700	LBK	Cla	Tim	Day	SP	Own
68		55	Her WXLC3	Zen	Uni	Mic	Zen 0-9747	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1600	Tim 35011H	Tim 75743H	Ro 700	LBK	T-S	Tim	Day	SP	Own
69		62	Con 22RF	Zen	Uni	Mic	Zen 0-8822	Aup	Lng	DR	DR	Exi	AC 83	WCL 14SP	Cla 326VO	Bld 7N	Tim 36000TW	Tim 76810W	Gem 500	Wes	T-S	Tim	Day	SP	Own
70		(c.o.e.) 76	Her JXFF	NS	AC	NS	Zen 0-7880	AC	Lng	DR	DR	Exi	AC 44	B&B A7	War T9	Spi 1350	Tim 31100H	Tim 53547H	Gem 370	Loc	War	Tim	Day	Mat	Own
71		(c.o.e.) 77	Her JXGF	Mon	AC	Pur	Zen 0-7880	AC	Lng	DR	DR	Exi	AC 44	B&B A6	War T9	Spi 1350	Tim 31100H	Tim 53308H	Gem 370	Loc	War	Tim	Day	Mat	Own
72		(c.o.e.) 80	Her JXBF	Mon	AC	Pur	Zen 0-7880	AC	Lng	DR	DR	Exi	AC 44	B&B A6	War T9	Spi 1400	Tim 31102H	Tim 54411H	Gem 370	LBK	War	Tim	Day	Mat	Own
73		(c.o.e.) 85	Her JXCF	Mon	AC	Pur	Zen 0-7880	AC	Lng	DR	DR	Exi	AC 44	B&B A6	Cla 185F	Spi 1400	Tim 32515H	Tim 55411H	Gem 370	LBK	Cla	Tim	Day	Mat	Own
74		(c.o.e.) 89	Her JXDF	Zen	AC	Pur	Zen 0-9495	AC	Lng	DR	DR	Exi	AC 44	B&B 12Q	Cla 205V	Spi 1500	Tim 32515H	Tim 56411H	Gem 370	LBK	Cla	Tim	Day	SP	Own
75		(c.o.e.) 90	Her WXC3	Zen	Uni	Mic	Zen 0-978	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 205V	Spi 1500	Tim 35011H	Tim 56411H	Ro 700	LBK	Cla	Tim	Day	SP	Own
76		(c.o.e.) 92	Her WXLC3	Zen	Uni	Mic	Zen 0-9747	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1500	Tim 35011H	Tim 58301H	Ro 700	LBK	Cla	Tim	Day	SP	Own
77		(c.o.e.) 94	Her WXLC3	Zen	Uni	Mic	Zen 0-9747	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1600	Tim 35011H	Tim 75743H	Ro 700	LBK	T-S	Tim	Day	SP	Own
78		296X4	Her JXDF	Zen	Uni	Pur	Zen 0-9503	AC	Lng	DR	DR	Exi	AC 44	B&B 12Q	Cla 205V	Spi 1500	Tim 32514H	Tim SW-3000H	Gem 370	LBK	T-S	Tim	Day	SP	Own
79		356X4	Her WXC3	Zen	Uni	Mic	Zen 0-9780	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1500	Tim 32515H	Tim SW-3000H	Gem 370	LBK	T-S	Tim	Day	SP	Own
80		556X4	Her WXLC3	Zen	Uni	Mic	Zen 0-9747	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1600	Tim 35000TW	Tim SW-3000PA	Ro 700	Wes	T-S	Tim	Day	Mat	Own
81		626X4	Con 22RF	Zen	Uni	Mic	Zen 0-8822	AC	Lng	DR	DR	Exi	AC 83	WCL 14SP	Cla 326V	Bld 7N	Tim 36000TW	Tim SW-454W	Gem 500	Wes	T-S	Tim	Day	Mat	Own
82		(c.o.e.) 896X4	Her JXDF	Zen	Uni	Pur	Zen 0-9495	AC	Lng	DR	DR	Exi	AC 44	B&B 12Q	Cla 205V	Spi 1500	Tim 32515H	Tim SW-3000H	Gem 370	LBK	T-S	Tim	Day	SP	Own
83		(c.o.e.) 906X4	Her WXC3	Zen	Uni	Mic	Zen 0-9780	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1500	Tim 35011H	Tim SW-3000H	Ro 700	LBK	T-S	Tim	Day	SP	Own
84		(c.o.e.) 946X4	Her WXLC3	Zen	Uni	Mic	Zen 0-9747	AC	Lng	DR	DR	Exi	AC 44	B&B 13Q	Cla 270V	Spi 1600	Tim 35000TW	Tim SW-3000PA	Ro 700	Wes	T-S	Tim	Day	Mat	Own
85	Ford-1942	Reg. 21T-81	Own 21T	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
86		Reg. 2GT-81	Own 2GT	NS	Own	NS	Own 1GA	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 1GT	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
87		Reg. 29T-81	Own 29T	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
88		Reg. 21ST-81	Own 21T	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
89		Reg. 2GST-81	Own 2GY	NS	Own	NS	Own 1GA	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 1GT	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
90		Reg. 29ST-81	Own 29T	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
91		(c.o.e.) 211W-81	Own 21W	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
92		(c.o.e.) 291W-81	Own 29W	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
93		(c.o.e.) 21W-81	Own 21W	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
94		(c.o.e.) 29W-81	Own 29W	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
95		(c.o.e.) 218W-81	Own 21W	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
96		(c.o.e.) 298W-81	Own 29W	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 01T	Own 01T	Own 01T	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
97		1 Ton 21Y-81	Own 21T	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 81T	Own 78	Own 01Y	Own 21Y	Own 21Y	Own 01T	Own	Own	Own	Own	Own	Own
98		1 Ton 2GY-81	Own 2GT	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 19A	Own 1GC	Own 01Y	Own 21Y	Own 21Y	Own 01T	Own	Own	Own	Own	Own	Own
99		1 Ton 2NY-81	Own 2NC	NS	Own	NS	Own ONY	Own	Own	Own	Own	Own	CH H10	Own 91A	Own ONY	Own 01Y	Own 21Y	Own 21Y	Own 21C	Own	Own	Own	Own	Own	Own
100		¾ Ton 21D-81	Own 21T	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 19A	Own 78	Own 01Y	Own 21Y	Own 21Y	Own 21C	Own	Own	Own	Own	Own	Own
101		¾ Ton 2GD-81	Own 2GA	NS	Own	NS	Own 1GA	Own	Own	Own	Own	Own	CH H10	Own 19A	Own 1GC	Own 01Y	Own 21Y	Own 21Y	Own 21C	Own	Own	Own	Own	Own	Own
102		¾ Ton 2ND-81	Own 2NC	NS	Own	NS	Own ONY	Own	Own	Own	Own	Own	CH H10	Own 91A	Own ONY	Own 01Y	Own 21Y	Own 21Y	Own 21C	Own	Own	Own	Own	Own	Own
103		Com. Car 21C-81	Own 21A	NS	Own	NS	Own 21A	Own	Own	Own	Own	Own	CH H10	Own 19A	Own 78	Own 01Y	Own 21C	Own 21C	Own 21C	Own	Own	Own	Own	Own	Own
104		Com. Car 2GC-81	Own 2GA	NS	Own	NS	Own 1GA	Own	Own	Own	Own	Own	CH H10	Own 19A	Own 1GC	Own 01Y	Own 21C	Own 21C	Own 21C	Own	Own	Own	Own	Own	Own
105		Com. Car 2NG-81	Own 2NC	NS	Own	NS	Own ONY	Own	Own	Own	Own	Own	CH H10	Own 91A	Own ONC	Own 01Y	Own 21C	Own 21C	Own 21C	Own	Own	Own	Own	Own	Own
106	Ford-1941	Reg. 11T-81	Own 11T	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
107		Reg. 19T-81	Own 19T	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
108		Reg. 11ST-81	Own 11T	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
109		Reg. 19ST-81	Own 19T	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 01T	Own 01T	Own 01T	Own	Own	Own	Own	Own	Own
110		(c.o.e.) 111W-81	Own 111W	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 81W	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
111		(c.o.e.) 191W-81	Own 191W	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 81W	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
112		(c.o.e.) 11W-81	Own 111W	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 81W	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
113		(c.o.e.) 19W-81	Own 191W	NS	Own	NS	Own91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 81W	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
114		(c.o.e.) 118W-81	Own 111W	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 81W	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
115		(c.o.e.) 198W-81	Own 191W	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 81T-7550	Own 01T	Own 01T	Own 81W	Own 01T	Own 01W	Own	Own	Own	Own	Own	Own
116		1 Ton 11Y-83	Own 11Y	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 91A-7550	Own 78	Own 01Y	Own 01Y	Own 01Y	Own 01Y	Own	Own	Own	Own	Own	Own
117		1 Ton 1NY-83	Own 1NC	NS	Own	NS	Own ONY-9510	Own	Own	Own	Own	Own	CH H10	Own 91A-7550	Own ONC	Own 01Y	Own 01Y	Own 01Y	Own 01Y	Own	Own	Own	Own	Own	Own
118		¾ Ton 11D-83	Own 11Y	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 91A-7550	Own 01T	Own 01Y	Own 01Y	Own 01Y	Own 01Y	Own	Own	Own	Own	Own	Own
119		¾ Ton 1ND-83	Own 1NC	NS	Own	NS	Own ONY-9510	Own	Own	Own	Own	Own	CH H10	Own 91A-7550	Own 01T	Own 01Y	Own 01Y	Own 01Y	Own 01Y	Own	Own	Own	Own	Own	Own
120		Com. Car 11C-83	Own 11C	NS	Own	NS	Own 91A-9510A	Own	Own	Own	Own	Own	CH H10	Own 11A-7550	Own 78	Own 81C	Own 78	Own 68	Own 01C	Own	Own	Own	Own	Own	Own
121		Com. Car 1NC-83	Own 1NC	NS	Own	NS	Own ONY-9510	Own	Own	Own	Own	Own	CH H10	Own 91A-7550	Own ONA	Own 81C	Own 78	Own 68	Own 01C	Own	Own	Own	Own	Own	Own
122	F. W. D.	HS	Wau BK	Wau	AM	Mic	Zen 15A23BV12	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL Z34S	Ful 5B33	Spi 1410	Wis F33-H8	Tim 53543HXI	Ro 660	Loc	Own	Own	Bdd	Own	Own
123		HA	Wau BZ	Wau	AM	Mic	Zen 15A23BV12	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z34S	Ful 5B33	Bld 5N	Own H	Own H	Ro 660	Loc	Own	Own	Own	Own	Own
124		HR	Wau MKR	Wau	AM	Mic	Zen 155	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z31S	Ful 5B43	Bld 5N	Own H	Own H	Ro 660	Loc	Own	Own	Own	Own	Own
125		CU	Wau MZR	Wau	AM	Mic	Zen 156	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z31S	Own 5	Bld 6N	Own U	Own U	Ro 720	Loc	Own	Own	Own	Own	Own
126		CUA	Wau MZR	Wau	AM	Mic	Zen 156	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z33S	Ful 5A43	Bld 6N	Own U	Own U	Ro 720	Loc	Own	Own	Own	Own	Own
127		SU	Wau SRLR	Wau	AM	Mic	Zen 456-2	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z31S	Own 5	Bld 6N	Own U	Own U	Ro 720	Loc	Own	Own	Own	Own	Own
128		SUA	Wau SRLR	Wau	AM	Mic	Zen 456-2	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z33S	Ful 5A62	Bld 6N	Own U	Own U	Ro 720	Loc	Own	Own	Own	Own	Own
129		YU	Wau SRKR	Wau	AM	Mic	Zen 456-2	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z33S	Own 5	Bld 6N	Own U	Own U	Ro 720	Loc	Own	Own	Own	Own	Own
130		MJ6	Wau SRKR	Wau	AM	Mic	Zen 157	AC	Pfx	DR	DR	Wil	CH 0-Com	WCL Z33S	Own M	Bld 7N	Wis 1337	Wis 1337	Ro 720	Loc	Own	Own	Own	Own	Own
131		M6	Wau GK	Wau	AM	Mic	Zen 158	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z33S	Own M	Bld 7N	Wis 1757	Wis 1757	Ro 720	Loc	Own	Own	Own	Own	Own
132		M7	Wau RBR	Wau	AM	Mic	Zen 158	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z33S	Own M	Bld 7N	Wis 1757	Wis 1757	Ro 720	Loc	Own	Own	Own	Own	Own
133		M10	Her HXE	AA	AM	Mic	Zen 15A23	SW	Pfx	DR	DR	Wil	CH 3-Com	WCL Z33S	Own M	Bld 7N	Wis 1910	Wis 1910	Ro 760	Wes	Own	Own	Bdd	Own	Own
134		(T) T-26	Wau BK	Wau	AM	Mic	Zen 15A23BV12	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL Z34S	Ful 5B330	Spi 1410	Wis F33-H8	Tim 53543HXI	Ro 660	Loc	Own	Own	Bdd	Own	Own
135		(T) T-30	Wau BZ	Wau	AM	Mic	Zen 15A23BV12	AC	Pfx	DR	DR	Wil	CH 3-Com	WCL Z34S	Ful 5B330	Bld 5N	Own H	Own H	Ro 660	Loc	Own	Own	Own	Own	Own

Continued on next page

Line Number	TRUCK MAKE AND MODEL NUMBER	POWER PLANT							ELECTRICAL EQUIPMENT				TRANSMISSION LINE			RUNNING GEAR								
		ENGINE Make and Model	Governor Make—(If Standard)	Air Cleaner Make (If Standard)	Oil Filter Make (If Standard)	CARBURETOR Make and Model Number	Fuel Feed System Make	Radiator Make	Ignition System Make	Generator—Starter Make	Battery—Make	SPARK PLUG Make and Model	CLUTCH Make and Model Number	TRANSMISSION Make and Model Number	UNIVERSALS Make and Model Number	FRONT AXLE Make and Model Number	REAR AXLE Make and Model Number	STEERING GEAR Make and Model Number	Service Brakes Make of Actuation	Hand Brakes Make of Actuation	Brake Drum Make	Wheels—Make	Springs—Make	Frame—Make
	F. W. D.—continued																							
1	(T) T-32	Wau MKR	Wau	AM	Mic	Zen 155	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL Z31S	Ful 5B430	Bid 5N	Own H	Own H	Ro 660	Loc	Own	Own	Own	Own	Own
2	MJ6X6	Wau SRKR	Wau	AM	Mic	Zen 157	AC	Pfx	DR	DR	Wil	CH 0-Com	WCL Z33S	Own M	Bid 7N	Wis 1337	Wis SD352	Ro 720	Wes	Own	Own	Bdd	Own	Own
3	M6X6	Wau RBR	Wau	AM	Mic	Zen 158	AC	Pfx	DR	DR	Wil	CH 0-Com	WCL Z33S	Own M	Bid 7N	Wis 1910W	Wis SD520	Ro 760	Wes	Own	Own	Bdd	Own	Own
4	Hug 85W	Wau 6BZ	Wau	Don	Wau	Zen 23AV12	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL 230S	Ful 5A43	Spi 1500	Shu 632	Cla R1300	Ro T70	Loc	T-S	.....	B-M	Roe	Own
5	87W	Wau 6MXR	Wau	Don	Wau	Zen 23AV12	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL Z32S	Ful 5A43	Spi 1600	Shu 647	Wis 1337H	Ro T70	Loc	T-S	.....	B-M	Roe	Own
6	92U	Wau 6SRKR	Wau	Don	Wau	Zen IN167	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL Z31S	Ful 5A62	Spi 1600	Shu 655	Wis 1910	Ro T74	.....	.....	.....	B-M	Roe	Own
7	(D) D92U	Cum HB400	NS	Don	Cum	.....	Cum	Pfx	LN	LN	Wil	.....	WCL Z31S	Ful [13]	Spi 1600	Shu 655	Wis 1910	Ro T74	.....	.....	.....	B-M	Roe	Own
8	98	Wau 6WAK	NS	Don	Wau	Zen	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL	Ful 8A86	Bid 7N	Shu 1673	Tim 79240	Ro T74	Wes	.....	.....	B-M	Roe	Own
9	99	Wau 6SRKR	NS	Don	Wau	Zen	AC	Pfx	DR	DR	Wil	CH 6-Com-62	WCL	Ful 8A86	Bid 7N	Shu 1673	Tim SD452W	Ro T74	Wes	.....	.....	B-M	Cha	Own
10	(D) 99	Cum HB600	NS	Don	Cum	.....	Cum	Pfx	LN	LN	Wil	.....	WCL	Ful 8A86	Bid 7N	Shu 1673	Tim SD452W	Ro T74	Wes	.....	.....	B-M	Cha	Own
11	International K-1	Own GRD214	NS	Uni	NS	Zen 28-BV-10	AC	Mod	DR	DR	AL	AC 87S	Own RK-10	Own HDS	Mec 2DR	Own F-50	Own R-1050	Ro T-12	Ben	Ben	Own	Own	Own	Own
12	K-1-M	Own GRD214A	Zen	Uni	NS	Zen 30-AW-10R	AC	Mod	DR	DR	AL	AC 87S	Own RK-10	Own SAHDSA	Mec 2DR	Own F-150	Own R-1050	Ro TA-14	Ben	Ben	Own	Own	Own	Own
13	K-2	Own GRD214	NS	Uni	NS	Zen 28-BV-10	AC	Mod	DR	DR	AL	AC 87S	Own RK-10	Own HDS	Mec 2DR	Own F-50	Own R-1050	Ro T-12	Ben	Ben	Own	Own	Own	Own
14	K-3	Own GRD214	NS	Uni	NS	Zen 28-BV-10	AC	Mod	DR	DR	AL	AC 87S	Own RK-10	Own HDSA	Mec 3DR	Own F-150	Own R-1150	Ro TA-12	Ben	Ben	Own	Own	Own	Own
15	K-3-M	Own GRD214A	Zen	Uni	NS	Zen 63-AW-10R	AC	Mod	DR	DR	AL	AC 87S	Own RK-10A	Own SHDSA	Mec 3DR	Own F-260	Own R-1150	Ro TA-14	Ben	Own	Own	Own	Own	Own
16	K-4	Own GRD214	NS	Uni	NS	Zen 28-BV-10	AC	Mod	DR	DR	AL	AC 87S	Own RK-10A	Own H41B	Mec 4DR	Own F-250	Own R-1350	Ro TA-12	Wag	Own	Own	Own	Own	Own
17	K-5	Own GRD233	NS	Uni	NS	Zen 28-BV-11	AC	Mod	DR	DR	AL	AC 87S	Own RK-10A	Own H41B	Mec 4DR	Own F-350	Own R-1360	Ro TA-14	Wag	Own	Own	Own	Own	Own
18	K-6	Own BLD250	NS	Don	NS	Zen 30-BW-11	AC	Mod	DR	DR	AL	AC 75	Own R-11	Own H41C	Mec 5DR	Own F-470	Own R-1460	Ro TA-21	Wag	Own	Own	Own	Own	Own
19	K-7	Own BLD269	NS	Don	NS	Zen 30-BW-11	AC	Mod	DR	DR	AL	AC 75	Own R-11	Own F-51	Mec 5DR	Own F-470	Own R-1560	Ro TA-21	Wag	Own	Own	Own	Own	Own
20	K-8	Own FBC361	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC 75	Own RK-12	Own F-51	Mec 6C	Own F-550	Own R-1570	Ro T-66	Wag	Own	Own	Own	Own	Own
21	K-10	Own FBC361	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC 75	Own RK-12	Ful 5A430	Mec 6C	Own F-650	Own R-1670	Ro T-70	Wag	Own	Own	Own	Own	Own
22	KR-11	Own FBC401	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC 75	Own R-14-12	Ful 5A430	Mec 6C	Own F-750	Own R-1700	Ro T-70	Wes	Own	Own	Own	Own	Own
23	A-8	Own FEB648	Zen	Mil	HW	Zen IN-166-D	AC	Mod	DR	DR	AL	AC 75	Own R-15	Own H-7	Mec 8C	Own F-930	Own R-1800	Ro T-74	Wes	T-S	Own	Own	Own	Own
24	K-5-COE	Own GRD233A	NS	Uni	NS	Zen 63-AW-11	AC	Mod	DR	DR	AL	AC 87S	Own RK-10A	Own H4A	Mec 4DR	Own F-470	Own R-1360	Ro TA-21	Wag	Own	Own	Own	Own	Own
25	K-7-COE	Own BLD269A	NS	Uni	NS	Zen 63-AW-11	AC	Mod	DR	DR	AL	AC 75	Own R-11	Own FF51	Mec 5DR	Own F-560	Own R-1560	Ro T-66	Wag	Own	Own	Own	Own	Own
26	K-8-COE	Own FBC318A	Zen	Uni	Mic	Zen 63-AW-11R	AC	Mod	DR	DR	AL	AC 75	Own RK-12	Own FF51	Mec 6C	Own F-660	Own R-1570	Ro 700	Wag	Own	Own	Own	Own	Own
27	KR-11-COE	Own FBC401A	Zen	Uni	Mic	Zen 63-AW-11R	AC	Mod	DR	DR	AL	AC	Own R-14-12	Ful 5F430	Mec 6C	Own F-920	Own R-1700	Ro 720	Wes	Own	Own	Own	Own	Own
28	K-8-F	Own BLD250	NS	Don	NS	Zen 30-BW-11	AC	Mod	DR	DR	AL	AC	Own R-11	Own H41C	Mec 5DR, 4DR	Own F-470	Own RF-1450	Ro T-66	Wag	Own	Own	Own	Own	Own
29	K-8-F	Own FBC318	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC	Own RK-12	Own F-51	Mec 6C, 5C	Own F-550	Own RF-1560	Ro T-66	Wag	Own	Own	Own	Own	Own
30	K-11-F	Own FBC401	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC	Own R-14-12	Ful 5A430	Mec 6C	Own F-760	Own RF-1670	Ro T-70	Wag	Own	Own	Own	Own	Own
31	KR-12-F	Own FBC450	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC	Own R-14-15	Ful 5A62	Mec 8C, 7C	Own F-850	Own RF-1750	Ro T-71	Wes	T-S	Own	Own	Own	Own
32	AR-626-F	Own FEB648	Han	Mil	HW	Zen IN-166-D	AC	Mod	DR	DR	AL	AC	Own R-15	Own H-7	Mec 8C	Own F-930	Own 1585	Ro 760	Wes	T-S	Own	Own	Own	Own
33	K-6-T	Own BLD250	NS	Don	NS	Zen 30-BW-11	AC	Mod	DR	DR	AL	AC	Own R-11	Own H-41C	Mec 5DR	Own F-470	Own RT-1460	Ro T-66	Wag	Own	Own	Own	Own	Own
34	K-8-T	Own FBC318	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC	Own RK-12	Own F-51	Mec 6C	Own F-550	Own RT-1570	Ro T-66	Wag	Own	Own	Own	Own	Own
35	KR-11-T	Own FBC401	Zen	Don	Mic	Zen 28-AV-11	AC	Mod	DR	DR	AL	AC	Own R-14-12	Ful 5A430	Mec 6C	Own F-760	Own RT-1680	Ro T-70	Wag	Own	Own	Own	Own	Own
36	Kenworth (D) 505	Cum HB4	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	WCL	Ful 5A620	Spi 1600	Tim 32502	Tim 58300	Ro 700	Loc	T-S	Tim	Bdd	Own	Own
37	(D) 506	Cum HB4	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	WCL	Ful 5A620	Spi 1600	Tim 32502	Tim 75743	Ro 700	Loc	T-S	Tim	Bdd	Own	Own
38	(D) 507	Cum HB4	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	WCL	Ful 5A620	Spi 1600	Tim 35100	Tim 76800	Ro 700	Loc	T-S	Tim	Bdd	Own	Own
39	(D) 511	Cum HB6	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	BL	BL 7641	Spi 1700	Tim 36000	Tim T-18000	Gem 500	Wes	T-S	Tim	Bdd	Own	Own
40	(D) 521	Cum HB6	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	BL	BL 7641	Spi 1700	Tim 36000	Tim 76800	Gem 500	Wes	T-S	Tim	Bdd	Own	Own
41	525	Bud LO525	Lei	Don	DeL	Zen IN-167	AC	Pfx	DR	DR	Exi	AC 45	WCL	Ful 5A620	Spi 1600	Tim 35100	Tim 75743	Ro 700	Loc	T-S	Tim	Bdd	Own	Own
42	526	Bud LO525	Lei	Don	DeL	Zen IN-167	AC	Pfx	DR	DR	Exi	AC 45	WCL	Ful 5A620	Spi 1600	Tim 35100	Tim 76800	Ro 700	Loc	T-S	Tim	Bdd	Own	Own
43	536	Wau BZR	Wau	Don	Mic	Zen 20AV12	AC	Yng	DR	DR	Exi	AC 45	WCL	Ful 5A330	Spi 1400	Tim 32502	Tim 54411	Ro 700	Loc	T-S	Tim	Bdd	Own	Own
44	537	Wau BZR	Wau	Don	Mic	Zen 20AV12	AC	Yng	DR	DR	Exi	AC	WCL	Ful 5A330	Spi 1400	Tim 32502	Tim 56411	Ro 700	Loc	.....	Tim	Bdd	Own	.....
45	538	Wau BZR	Wau	Don	Mic	Zen 20AV12	AC	Yng	DR	DR	Exi	AC	WCL	Ful 5A330	Spi 1400	Tim 32502	Tim 58300	Ro 700	Loc	.....	Tim	Bdd	Own	.....
46	529	Wau MZR	Wau	Don	Mic	Zen IN167	AC	Yng	DR	DR	Exi	AC 85	WCL	Ful 5A430	Spi 1400	Tim 32502	Tim 58300	Ro 700	Loc	.....	Tim	Bdd	Own	.....
47	530	Wau MZR	Wau	Don	Mic	Zen IN167	AC	Yng	DR	DR	Exi	AC 85	WCL	Ful 5A430	Spi 1500	Tim 32502	Tim 75143	Ro 700	Loc	.....	Tim	Bdd	Own	.....
48	531	Wau MZR	Wau	Don	Mic	Zen IN167	AC	Yng	DR	DR	Exi	AC 85	WCL	Ful 5A430	Spi 1500	Tim 35100	Tim 76800	Ro 700	Loc	.....	Tim	Bdd	Own	.....
49	539	Wau MZR	Wau	Don	Mic	Zen IN167	AC	Yng	DR	DR	Exi	AC 85	WCL	Ful 5A62	Spi 1500	Wis F207	Wis 72300	Gem 500	Loc	T-S	Wis	Bdd	.....	.....
50	540	Wau MZR	Wau	Don	Mic	Zen IN167	AC	Yng	DR	DR	Exi	AC 85	WCL	Ful 5A62	Spi 1600	Wis F323	Wis 1337	Gem 500	Wes	T-S	Wis	Bdd	.....	.....
51	541	Bud LO525	Lei	Don	DeL	Zen IN167	AC	Yng	DR	DR	Exi	AC 46	WCL	Ful 5A62	Spi 1600	Wis F323	Wis 1337	Gem 500	Wes	T-S	Wis	Bdd	.....	.....
52	542	Bud LO525	Lei	Don	DeL	Zen IN167	AC	Yng	DR	DR	Exi	AC 46	WCL	Ful 5A62	Spi 1600	Wis F427	Wis 1757	Gem 500	Wes	T-S	Wis	Bdd	.....	.....
53	(D) 510	Cum HB6	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	BL	BL 7641	Spi 1600	Tim 36000	Tim T-18000	Gem 500	Wes	T-S	Tim	Bdd	.....	.....
54	(D) 522	Cum HB6	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	BL	BL 7641	Spi 1700	Tim 36000	Tim 76800	Gem 500	Wes	T-S	Tim	Bdd	.....	.....
55	(D) 523	Cum HB6	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	BL	BL 7641	Spi 1700	Tim 36000	Tim SW3000	Gem 500	Wes	T-S	Tim	Bdd	.....	.....
56	(D) 524	Cum HB6	Cum	Don	Nug	.....	Cum	Pfx	DR	DR	Exi	.....	BL	BL 7641	Spi 1700	Tim 36000	Tim SW 452	Gem 500	Wes	T-S	Tim	Bdd	.....	.....
57	528	Bud LO 525	Lei	Don	DeL	Zen IN167	AC	Pfx	DR	DR	Exi	AC 45	WCL	Ful 5A620	Spi 1600	Tim 35100	Tim SW3000	Ro 700	Wes	T-S	Tim	Bdd	.....	.....
58	532	Wau MZR	Wau	Don	Mic	Zen IN167	AC	Yng	DR	DR	Exi	AC	WCL	Ful 5A430	Spi 1500	Tim 35100	Tim SW3000	Ro 700	Wes	T-S	Tim	Bdd	.....	.....

59	La France-Republic	EH5B	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502	Tim 56411	Gem 375	Loc	Ful	Tim	Day	Mar	Own
60		EH5D	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502	Tim 76411	Gem 375	Loc	Ful	Tim	Day	Mar	Own
61		EH6B	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502	Tim 58301	Gem 375	Loc	Ful	Tim	Day	Mar	Own
62		EH6D	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502	Wis 72300	Gem 375	Loc	Ful	Tim	Day	Mar	Own
63		FH5B	Wau MZR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 6N	Tim 35000	Tim 58301	Gem 375	Loc	Own	Tim	Day	Mar	Own
64		FH5D	Wau MZR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 6N	Tim 35000	Wis 72300	Gem 375	Loc	Own	Tim	Bdd	Mar	Own
65		HH7	Wau MZR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Spi 1600	Tim 35100	Wis 1337	Ro T71	Loc	Own	Tim	Bdd	Mar	Own
66		KH2	Wau SRLR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A620	Spi 1600	Tim 35100	Tim 75743	Ro T71	Loc	Own	Tim	Bdd	Mar	Own
67		MH5	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A620	Spi 1600	Tim 36000	Wis M57	Ro T71	Loc	Own	Tim	Bdd	Mar	Own
68	Marmon-Herrington	LD6-4	Frd V8-90	NS	Frd	Frd	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 91T	Frd	M-F	Own 80H	Frd 81	Frd 81C	Frd	Frd	Frd	Bdd	Frd	Frd
69		OT5-4	Frd V8-90	NS	Frd	Frd	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 91T	Frd	Frd 01Y	Own 80H	Frd 01Y	Frd 01Y	Frd	Frd	Frd	Bdd	Frd	Frd
70		MM5-4	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
71		MM6-4	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
72		(c.o.e.) MM5-4	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
73		(c.o.e.) MM6-4	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
74		DSD100-4	Her JXB	NS	AM	Mic	Zen 28AV12	AC	Yng	DR	DR	PL	CH 8-Com	B&B 12Q	War T9WG	Spi 1400	TW(12) MH101	Tim(12) MH1011	Ro 670	Loc	T-S	Tim	Bdd	SS	Own
75		DSD200-4	Her JXC	NS	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	B&B 12Q	Ful 5A33	Spi 1400	TW(12) MH101	Tim(12) MH1011	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
76		DSD300-4	Her JXD	NS	AM	Mic	Zen 28AV12	AC	Yng	DR	DR	PL	CH 8-Com	B&B 13Q	Ful 5A33	Spi 1400	TW(12) MH102	Tim(12) MH1022	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
77		DSD400-4	Her WXC3	Han	AM	Mic	Zen IN186Ex2	AC	Yng	DR	DR	PL	CH 8-Com	WCL 230S	Ful 5A430	Spi 1500	TW(12) MH103	Tim(12) MH1033	Ro 700	LV	T-S	Tim	Bdd	SS	Own
78		DSD500-4	Her WXLC3	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	WCL 232S	Ful 5A430	Spi 1500	TW(12) MH104	Tim(12) MH1044	Ro 700	LV	T-S	Tim	Bdd	SS	Own
79		DSD550-4	Her RXB	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1600	TW(12) MH104	Wis(12) MH1044	Ro 720	LV	T-S	Tim	Bdd	SS	Own
80		DSD550DR-4	Her RXB	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1600	Wis(12) MH106	Wis(12) MH1066	Ro 720	LV	T-S	Tim	Bdd	SS	Own
81		DSD600-4	Her RXB	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1600	Wis(12) MH105	Wis(12) MH1055	Ro 720	LV	T-S	Tim	Bdd	SS	Own
82		DSD700-4	Her RXB	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1600	Wis(12) MH107	Wis(12) MH1077	Ro 720	Wes	T-2	Tim	Bdd	SS	Own
83		DSD800-4	Her RXLD	Han	AM	Mic	Zen IN167SJ	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1700	Wis(12) MH108	Wis(12) MH1088	Ro 720	Wes	T-S	Tim	Bdd	SS	Own
84		DSD900-4	Her HXD	Han	AM	Mic	Zen IN158	AC	Yng	DR	DR	PL	CH 8-Com	WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH108	Wis(12) MH1088	Ro T-74	Wes	T-S	Tim	Bdd	SS	Own
85		DSD1000-4	Her HXE	Han	AM	Mic	Zen IN158	AC	Yng	DR	DR	PL	CH 8-Com	WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH109	Wis(12) MH1099	Ro T-74	Wes	T-S	Tim	Bdd	SS	Own
86		(D) DDSD200-4	Her DJXB	NS		Mic		Bos	Yng		DR	PL		B&B 12Q	Ful 5A33	Spi 1400	TW(12) MH101	Tim(12) MH1011	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
87		(D) DDSD300-4	Her DJXC	NS		Mic		Bos	Yng		DR	PL		B&B 13Q	Ful 5A33	Spi 1400	TW(12) MH102	Tim(12) MH1022	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
88		(D) DDSD550DR-4	Her DRXB	Han		Mic		Bos	Yng		DR	PL		Ful	Ful 5A620	Spi 1600	TW(12) MH106	Tim(12) MH1066	Ro 720	LV	T-S	Tim	Bdd	SS	Own
89		(D) DDSD700-4	Her DRXB	Han		Mic		Bos	Yng		DR	PL		Ful	Ful 5A620	Spi 1600	Wis(12) MH107	Wis(12) MH1077	Ro 720	Wes	T-S	Tim	Bdd	SS	Own
90		(D) DDSD800-4	Her DRXB	Han		Mic		Bos	Yng		DR	PL		Ful	Ful 5A620	Spi 1700	Wis(12) MH108	Wis(12) MH1088	Ro 720	Wes	T-S	Tim	Bdd	SS	Own
91		(D) DDSD900-4	Her DRXB	Han		Mic		Bos	Yng		DR	PL		WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH108	Wis(12) MH1088	Ro T-74	Wes	T-S	Tim	Bdd	SS	Own
92		(D) DDSD1000-4	Her DRXB	Han		Mic		Bos	Yng		DR	PL		WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH109	Wis(12) MH1099	Ro T-71	Wes	T-S	Tim	Bdd	SS	Own
93		DSD200-6	Her JXC	NS	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	B&B 12Q	Ful 5A33	Spi 1400	Wis(12) MH110	Wis(12) MH1100	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
94		DSD300-6	Her JXD	NS	AM	Mic	Zen 28AV12	AC	Yng	DR	DR	PL	CG 8-Com	B&B 13Q	Ful 5A33	Spi 1400	Wis(12) MH111	Wis(12) MH1111	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
95		DSD400-6	Her WXC3	Han	AM	Mic	Zen IN186Ex2	AC	Yng	DR	DR	PL	CH 8-Com	WCL 230S	Ful 5A430	Spi 1500	Wis(12) MH111	TW(12) MH1111	Ro 700	LV-	T-S	Tim	Bdd	SS	Own
96		DSD500-6	Her WXLC3	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	WCL Z32S	Ful 5A430	Spi 1500	Wis(12) MH113	TW(12) MH1133	Ro 700	LV	T-S	Tim	Bdd	SS	Own
97		DSD600-6	Her RXB	Han	AM	Mic	Zen 20AV12	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1600	Wis(12) MH113	TW(12) MH1133	Ro 720	Wes	T-S	Tim	Bdd	SS	Own
98		DSD800-6	Her RXLD	Han	AM	Mic	Zen IN167SJ	AC	Yng	DR	DR	PL	CH 8-Com	Ful	Ful 5AG20	Spi 1700	Wis(12) MH114	TW(12) MH1144	Ro 720	Wes	T-S	Tim	Bdd	SS	Own
99		DSD900-6	Her HXD	Han	AM	Mic	Zen IN158	AC	Yng	DR	DR	PL	CH 8-Com	WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH114	TW(12) MH1144	Ro T-74	Wes	T-S	Tim	Bdd	SS	Own
100		DSD1000-6	Her HXE	Han	AM	Mic	Zen IN158	AC	Yng	DR	DR	PL	CH 8-Com	WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH115	TW(12) MH1155	Ro T-74	Wes	T-S	Tim	Bdd	SS	Own
101		(D) DDSD200-6	Her DJXB	NS		Mic		Bos	Yng		DR	PL		B&B 12Q	Ful 5A33	Spi 1400	Wis(12) MH110	Wis(12) MH1100	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
102		(D) DDSD300-6	Her DJXC	NS		Mic		Bos	Yng		DR	PL		B&B 13Q	Ful 5A33	Spi 1400	Wis(12) MH111	Wis(12) MH1111	Ro T-71	LV	T-S	Tim	Bdd	SS	Own
103		(D) DDSD600-6															Wis(12) MH113	Wis(12) MH1133							
104		(D) DDSD800-6	Her DRXB	Han		Mic		Bos	Yng		DR	PL		Ful	Ful 5A620	Spi 1700	Wis(12) MH114	Wis(12) MH1144	Ro 720	Wes	T-S	Tim	Bdd	SS	Own
105		(D) DDSD900-6	Her DRXB	Han		Mic		Bos	Yng		DR	PL		WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH114	Wis(12) MH1144	Ro T-74	Wes	T-S	Tim	Bdd	SS	Own
106		(D) DDSD1000-6	Her DRXB	Han		Mic		Bos	Yng		DR	PL		WCL Z40S	Ful 4A86	Spi 1700	Wis(12) MH115	Wis(12) MH1155	Ro T-71	Wes	T-S	Tim	Bdd	SS	Own
107		MM5-6	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
108		MM6-6	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
109		(c.o.e.) MM5-6	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
110		(c.o.e.) MM6-6	Frd V8-100	NS	Frd	Fram	Frd 21A	Frd	Frd	Frd	Frd	Frd	CH H10	Frd 01T	Frd	Spi 1300	Own 80H	Frd 01T	Frd 01T	Frd	Frd	Frd	Bdd	Frd	Frd
111	Oshkosh	W-100	Her JXC	Han	AM	Mic	Zen 28BV12	AC	Yat	DR	DR	Gbe	AC 74	B&B 13Q	Ful 5B33	Spi 1410	Own 100	Own 100	Ro T-70	B-K	Own	Gun	Bdd	Tut	Own
112		W-200	Her JXD	Han	AM	Mic	Zen 28BV12	AC	Yat	DR	DR	Gbe	AC 74	B&B 13Q	Ful 5B33	Spi 1410	Own 200	Own 200	Ro T-70	B-K	Own	Gun	Bdd	Tut	Own
113		W-300	Her WXC3	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A43	Spi 1500	Own 300	Own 300	Ro T-71	B-K	Own	Gun	Bdd	Tut	Own
114		W-304	Her WXLC3	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A43	Spi 1500	Own 304	Own 304	Ro T-71	B-K	Own	Gun	Bdd	Tut	Own
115		W-400	Her YXC3	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A620	Spi 1600	Own 400	Own 400	Ro T-71	B-K	Own	Gun	Bdd	Tut	Own
116		W-500	Her RXBO	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A620	Spi 1600	Own 500	Own 500	Ro T-71	B-K	Own	Run	Bdd	Tut	Own
117		W-600	Her RXBO	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A620	Spi 1600	Own 600	Own 600	Ro T-71	B-K	Own	Gun	Bdd	Tut	Own
118		W-700	Her RXCO	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A620	Spi 1600	Own 700	Own 700	Ro T-71	B-K	Own	Gun	Bdd	Tut	Own
119		W-800	Her RXLD	Pce	Don	Mic	Zen IN167	AC	Yat	DR	DR	Gbe	AC 74	WCL Z31S	Ful 5A620	Spi 1600	Own FD	Own FD	Ro T-71	Wag	Own	Gun	Bdd	Tut	Own
120		(D) W-900	Cum 6HB		Don	Cuno			Yat		DR	Wil		WCL Z40S	Ful 4A86	Spi 1600	Own 900	Own 900	Ro T-74	Wes	Own	Gun	Bdd	Tut	Own
121		BG3	Her HXB	Pce	AM	Mic	Zen 158	AC	Pfx	AL	L-D	Gbe	AC 74	WCL Z40S	Ful 4A86	Spi 1700	Own BG3	Own BG3	Ro T-74	Wes	Own	Gun	Bdd	Tut	Own
122		GD	Her HXE	Pce	AM	Mic	Zen 158	AC	Pfx	AL	L-D	Gbe	AC 74	WCL Z40S	Ful 4A86	Spi 1700	Own GD	Own GD	Ro T-74	Wes	Own	Gun	Bdd	Tut	Own
123	Reo	19	Own GC228	Han	Uni	Fram	Zen	AC	Fed	DR	DR	Wil	CH J10-Com	B&B 10A7	Cla 185F	CS R-96½	Tim 30000	Tim 53308	Ro 615	Loc		MW	MW	SS	YS
124		20	Own GC245	Han	Uni	Fram	Zen	AC	Fed	DR	DR	Wil	CH J10-Com	B&B 11A6	Cla 185F	CS O-96	Tim 30000	Tim 54412	Ro 615	Loc		MW	MW	SS	YS
125		21	Own GC288	Han	Uni	Fram	Zen	AC	Mod	DR	DR	Wil	CH J10-Com	Lng 12CB	Cla 231F	CS D-96	Tim 31107	Tim 55411	Gem 375	LBK		MW	MW	SS	YS
126		22	Own GC310	Han	Uni	Fram	Zen	AC	Mod	DR	DR	Wil	CH J10-Com	Lng 12CB	Cla 231F	CS U-96	Tim 31107	Tim 56411	Gem 375	LBK		MW	MW	SS	YS
127		23	Own GC310	Han	Uni	Fram	Zen	AC	Mod	DR	DR	Wil	CH J10-Com	Lng 12CB	Cla 205V	CS U-96	Tim 32502	Tim 58300	Gem 375	LBK		MW	MW	SS	YS
128		23H	Wau 6MKR	Han	Uni	Fram	Zen	AC	Mod	DR	DR	Wil	CH J10-Com	WCL Z30S	Cla 205V	CS U-96	Tim 32502	Tim 58300	Gem 375	LBK		MW	MW	SS	YS
129		25	Wau 6MZR	Han	Uni	Fram	Zen	AC	Mod	DR	DR	Wil	CH J10-Com	WCL Z30S	Cla 270V	CS U-96	Tim 35000	Tim 1337	Gem 375	LBK		Tim	MW	SS	YS
130		27	Wau 6SRKR	Han	Uni	Fram	Zen	AC	Mod	DR	DR	Wil	CH J10-Com	WCL Z31S	Cla 326V	CS C-96	Tim 36000	Tim 1757	Ro T-70	Wes	T-S	Tim	MW	SS	YS

Line Number	TRUCK MAKE AND MODEL NUMBER	POWER PLANT							ELECTRICAL EQUIPMENT				TRANSMISSION LINE			RUNNING GEAR								
		ENGINE Make and Model	Governor Make—(If Standard)	Air Cleaner Make (If Standard)	Oil Filter Make (If Standard)	CARBURETOR Make and Model Number	Fuel Feed System Make	Radiator Make	Ignition System Make	Generator—Starter Make	Battery—Make	SPARK PLUG Make and Model	CLUTCH Make and Model Number	TRANSMISSION Make and Model Number	UNIVERSALS Make and Model Number	FRONT AXLE Make and Model Number	REAR AXLE Make and Model Number	STEERING GEAR Make and Model Number	Service Brakes Make of Actuation	Hand Brakes Make of Actuation	Brake Drum Make	Wheels—Make	Springs—Make	Frame—Make
1	Sterling MB75	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502H	Tim 56411H	Gem 375	Loc	Ful	Tim	Day	Mar	Own
2	MB85	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502H	Tim 58301H	Gem 375	Loc	Ful	Tim	Day	Mar	Own
3	MC87	Wau BZ	NS	Don	HW	Zen 23AV12	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A33	Bld 5N	Tim 32502H	Own 96H	Gem 375	Loc	Ful	Tim	Bdd	Mar	Own
4	MB90	Wau MKR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 5N	Tim 33000H	Tim 58301H	Gem 375	Loc	Ful	Tim	Day	Mar	Own
5	MC96	Wau MKR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 5N	Tim 33000H	Own 96H	Gem 375	Loc	Ful	Tim	Bdd	Mar	Own
6	MD96	Wau MKR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 5N	Tim 33000H	Tim 75743	Gem 375	Loc	Ful	Tim	Bdd	Mar	Own
7	JB90	Wau MZR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 6N	Tim 35000	Tim 58300	Ro 700	Loc	Own	Tim	Bdd	Mar	Own
8	HD105	Wau MZR	Han	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Spi 1600	Tim 35100	Tim 75743	Ro T71	Loc	Own	Tim	Bdd	Mar	Own
9	HD110	Wau SRLR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	BL	BL 5341	Spi 1600	Tim 35100	Tim 75743	Ro 720	Loc	Own	Tim	Bdd	Mar	Own
10	HD115	Wau SRLR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	BL	BL 5341	Spi 1600	Tim 35100	Tim 76793	Ro 720	Loc	Own	Tim	Bdd	Mar	Own
11	JD135	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1600	Tim 26452	Tim 76793	Ro 720	Wes	Own	Tim	Bdd	Mar	Own
12	JD137	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1600	Tim 26452	Wis 1757	Ro 720	Wes	Own	Tim	Bdd	Mar	Own
13	HD145	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1700	Tim 36000	Wis 1910	Ro T71	Wes	Own	Tim	Bdd	Mar	Own
14	HD165	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1700	Tim 27452	Tim 79733	Ro 720	Wes	Own	Tim	Bdd	Mar	Own
15	HD175	Wau 145GS	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B5	WCL	Ful 4B86	Spi 1700	Tim 27451	Tim 79746	Gem 550	Wes	Own	Tim	Day	Mar	Own
16	HC105	Wau MZR	NS	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A43	Bld 6N	Tim 35100	Own 137	Ro T71	Loc	Own	Own	Bdd	Mar	Own
17	HC115	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Bld 6N	Tim 36000	Own 137	Ro T71	Wes	Own	Own	Bdd	Mar	Own
18	JC115	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1600	Tim 35000	Own 137	Ro 720	Wes	Own	Own	Bdd	Mar	Own
19	JC137	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1600	Tim 26452	Own 137	Ro 720	Wes	Own	Own	Bdd	Mar	Own
20	HC144	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Bld 6N	Tim 36000	Own 144	Ro T71	Wes	Own	Own	Bdd	Mar	Own
21	JC145	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Spi 1600	Tim 26452	Own 145	Ro 720	Wes	Own	Own	Bdd	Mar	Own
22	HC145	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Bld 6N	Tim 36000	Own 145	Ro T71	Wes	Own	Own	Bdd	Mar	Own
23	HC147	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Bld 6N	Tim 36000	Own 147	Ro T71	Wes	Own	Own	Bdd	Mar	Own
24	HC158	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Bld 6N	Tim 27451	Own 158	Ro T71	Wes	Own	Own	Day	Mar	Own
25	HC165	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL T7	WCL	Ful 5A62	Bld 6N	Tim 27451	Own 165	Ro T71	Wes	Own	Own	Day	Mar	Own
26	HC175	Wau 145GS	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 175	Gem 550	Wes	Own	Own	Day	Mar	Own
27	HC185	Wau 145GK	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 185	Gem 550	Wes	Own	Own	Day	Mar	Own
28	HC200	Wau 145GK	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 200	Gem 550	Wes	Own	Own	Day	Mar	Own
29	HC250	Wau 145GK	Wau	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 250	Gem 550	Wes	Own	Own	Day	Mar	Own
30	HBT128	Wau MZR	Han	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 6N	Tim 35000	Tim SBT252	Ro 700	Loc	Own	Tim	Bdd	Mar	Own
31	HWS128	Wau MZR	Han	Don	HW	Zen IN167SJ	AC	Mod	AL	AL	Nat	AL B9	WCL	Ful 5A430	Bld 6N	Tim 35000	Tim SW251	Ro 700	Loc	Own	Tim	Bdd	Mar	Own
32	JWS160	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	DR	DR	Nat	AL T7	WCL	Ful 5A62	Spi 1600	Tim 26452	Tim SW352	Ro 720	Wes	Own	Tim	Bdd	Mar	Own
33	HWS235S	Wau SRKR	Wau	Don	HW	Zen IN167SJ	AC	Mod	DR	DR	Nat	AL T7	WCL	Ful 5A62	Spi 1700	Tim 27452	Tim SW452	Gem 550	Wes	Own	Tim	Bdd	Mar	Own
34	HCS235	Wau 145GS	Wau	Don	HW	Zen IN167SJ	AC	Mod	DR	DR	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 255	Gem 550	Wes	Own	Tim	Bdd	Mar	Own
35	HCS265	Wau 145GK	Wau	Don	HW	Zen IN167SJ	AC	Mod	DR	DR	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 265	Gem 550	Wes	Own	Tim	Bdd	Mar	Own
36	HCS297	Wau 145GK	Wau	Don	HW	Zen IN167SJ	AC	Mod	DR	DR	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 330	Gem 550	Wes	Own	Tim	Bdd	Mar	Own
37	HCS330	Wau 145GK	Wau	Don	HW	Zen IN167SJ	AC	Mod	DR	DR	Nat	AL B5	WCL	Ful 4B86	Bld 7N	Tim 27451	Own 330	Gem 550	Wes	Own	Tim	Bdd	Mar	Own
38	Stewart 49A	Wau 6BZ	Mon	AM	Mic	Zen 23AV12	AC	Fed	DR	DR	USL	CH 7-Com	WCL	Ful 5B330	Spi 1500	Cla 450	Tim 56412	Ro T26	LBK	Ful	Erie	Erie	SP	Par
39	58A	Wau 6MZR	Wau	AM	Mic	Zen IN167	AC	Fed	DR	DR	USL	CH 7-Com	WCL	Ful 5B430	Spi 1600	Tim 35100	Eat 1801	Ro T70	LBK	T-S	Erie	Erie	SP	Par
40	59A	Wau 6MZR	Wau	AM	Mic	Zen IN167	AC	Mod	DR	DR	USL	CH 7-Com	WCL	Ful 5B430	Spi 1600	Tim 35100	Eat 2680	Ro T70	LBK	T-S	Erie	Erie	SP	Par
41	38A	Wau 6SRKR	Wau	AM	Mic	Zen IN167	AC	Mod	DR	DR	USL	CH 7-Com	Spi	Spi 5351	Spi 1700	Eat 570	Tim 75743	Ro T70	LBK	T-S	Erie	Erie	SP	Par
42	Studebaker M5	Own 3G	NS	AC	Fram	Car WA1-496S	AC	McC	AL	AL	Wil	CH J9	B&B 9A6	War T90	Spi	Spi 41	Spi 2040	Ro T12	Wag	Wag	Bdd	Bdd	Own	Mid
43	M15	Own 3G	Hof	AC	Fram	Car WA1-496S	AC	McC	AL	AL	Wil	CH J9	B&B 9A6	War T9	Cle R96	Tim 29501	Tim 53625	Ro T14	Wag	Wag	Day	D-B	Own	Mid
44	M16	Own 11A	Hof	AC	Fram	Car BBR1-514S	AC	McC	AL	AL	Wil	CH 6-Com. 62	Ini G	War T9	Cle R96	Tim 30004	Tim	Ro T14	Wag	Wag	Day	D-B	Own	Mid
45	Truckstell TRC-18-5	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	C-W	Spi 1410	Che	Cla R1300	Che	.....	Che	.....	Cla	Eat	Own
46	TRF-18-5E	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	C-W	Spi 1410	Frd	Cla R1300	Frd	.....	Frd	.....	Cla	Eat	Own
47	TRF-18-5S	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	C-W	Spi 1410	Frd	Cla R1300	Frd	.....	Frd	.....	Cla	Eat	Own
48	TRC-18-5CO	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	C-W	Spi 1410	Che	Cla R1300	Che	.....	Che	.....	Cla	Eat	Own
49	TRF-18-5ECO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	C-W	Spi 1410	Frd	Cla R1300	Frd	.....	Frd	.....	Cla	Eat	Own
50	TRF-18-5SCO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	C-W	Spi 1410	Frd	Cla R1300	Frd	.....	Frd	.....	Cla	Eat	Own
51	TRC-35BM	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	Cla	Che	Che	Che	Che	Che	Che	.....	Cla	C-E	Che
52	TRC-35BMO	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	Cla	Che	Che	Che	Che	Che	Che	.....	Cla	C-E	Che
53	TRC-40BM	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	Cla	Che	Che	Eat 1475	Che	Che	Che	.....	Cla	C-E	Che
54	TRC-40BMO	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	Cla	Che	Che	Eat 1475	Che	Che	Che	.....	Cla	C-E	Che
55	TRC-2X400	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	.....	.....	Che	E-T (14)	Che	Ben	.....	.....	Che	Che	Own
56	TRC-2X400CO	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	.....	.....	Che	E-T	Che	Ben	.....	.....	Che	Che	Own
57	TRC-4XD26C	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	.....	.....	Che	C-T	Che	Che	.....	.....	Che	Thn	Own
58	TRC-4XD27CO	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	.....	.....	Che	C-T	Che	Che	.....	.....	Che	Thn	Own
59	TRC-4XD30E	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	.....	.....	Che	C-T	Che	Che	.....	.....	Che	Thn	Own
60	TRF-2X250	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	.....	.....	Frd	E-T (15)	Frd	Frd	.....	.....	Frd	Frd	Own
61	TRF-2X400	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	.....	.....	Frd	E-T (16)	Frd	Frd	.....	.....	Frd	Frd	Own

62		TRF-2X250CO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd			Frd	E-T [15]	Frd	Frd	.....	.....	Frd	Frd	Own
63		TRF-2X400CO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd			Frd	E-T [16]	Frd	Frd	.....	.....	Frd	Frd	Own
64		TRF-4XD26F	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd			Frd	F-T	Frd	Frd	.....	.....	Frd	Thn	Own
65		TRF-4XD29EO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd			Frd	E-T [15]	Frd	Frd	.....	.....	Frd	Thn	Own
66		TRF-4XD27F	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd			Frd	F-T	Frd	Frd	.....	.....	Frd	Thn	Own
67		TRF-4XD30EO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd			Frd	E-T [15]	Frd	Frd	.....	.....	Frd	Thn	Own
68		TRC-4XD31EO	Che	NS	AC	Har	Car	AC	Har	DR	DR	DR	AC 104	Che	Che		Che	E-T [14]	Che	Che	.....	.....	Che	Thn	Own
69		TRF-4XD30E	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	Frd		Frd	E-T [16]	Frd	Frd	.....	.....	Frd	Thn	Own
70		TRF-4XD31EO	Frd	NS	Frd	NS	Frd	Frd	Frd	Frd	Frd	Frd	CH H10	Frd	Frd		Frd	E-T [16]	Frd	Frd	.....	.....	Frd	Thn	Own
71	Walter	FN	Wau 6MKR	Wau	AM	DF	Zen 456	AC	Yng	DR	DR	Wil	AC 76	WCL Z30S	Own FN5	Own FNE	Own FQM	Own FQNB	Ro T70	Wes	Own	Own	Bdd	Det	Own
72		FM	Wau 6SRLR	Wau	AM	DF	Zen 456	AC	Yng	DR	DR	Wil	AC 76	WCL Z31S	Own FJD	Own FNE	Own FJ	Own FQNB	Ro T70	Wes	Own	Own	Bdd	Det	Own
73		FKM	Wau 6SRKR	Wau	AM	DF	Zen 457	AC	Yng	DR	DR	Wil	AC 76	WCL Z31S	Own FJD	Own FNE	Own FJ	Own FQNB	Ro T70	Wes	Own	Own	Bdd	Det	Own
74		FCK	Wau 6SRKR	Wau	AM	DF	Zen 457	AC	G&O	DR	DR	Wil	AC 75	WCL Z31S	Own FC	Own FD	Own FC	Own FCB	Ro T71	Wes	Own	Own	Bdd	Det	Own
75		FC	Wau 6SRKR	Wau	AM	DF	Zen 457	AC	G&O	DR	DR	Wil	AC 75	WCL Z31S	Own FC	Own FD	Own FC	Own FCB	Ro T71	Wes	Own	Own	Bdd	Det	Own
76		FB	Wau 6RBR	Wau	AM	DF	Zen 458	AC	G&O	Scn	DR	Wil	AC 75	WCL Z42S	Own FH	Own FD	Own FCR	Own FCR	Ro T71	Wes	Own	Own	Bdd	Det	Own
77		FBR	Wau 6RBR	Wau	AM	DF	Zen 458	AC	G&O	Scn	DR	Wil	AC 75	WCL Z42S	Own FH	Own FD	Own FCR	Own FCR	Ro T71	Wes	Own	Own	Bdd	Det	Own
78		FX	Her HXE	Pce	AM	HW	Zen 458	AC	G&O	D-S	LN	USL	AC 86	WCL Z40SX	Own FH	Own FBE	Own FXR	Own FCB	Ro T71	Wes	Own	Own	Bdd	Det	Own
79		FXR	Her HXE	Pce	AM	HW	Zen 458	AC	G&O	D-S	LN	USL	AC 86	WCL Z40SX	Own FH	Own FBE	Own FXR	Own FCB	Ro T71	Wes	Own	Own	Bdd	Det	Own
80	Ward La France	125	Wau MZR	Mon	Uni	Mic	Str DX4	AC	Pfx	DR	DR	USL	CH 00-Com	B&B 13Q	Ful 5A430	Spi 1500	Tim 33000H	Tim 58300H	Ro 700	Wag	AC	Tim	Bdd	Tut	Own
81		131	Wau MZR	Mon	Uni	Mic	Str DX4	AC	Pfx	DR	DR	USL	CH 00-Com	Spi	Ful 5A430	Spi 1500	Tim 35000H	Wis 1337H	Ro 700	Wag	AC	Tim	Bdd	Tut	Own
82		136	Wau SRLR	Mon	Uni	Mic	Str BXUV3	AC	Pfx	DR	DR	USL	AC 75	B&B	Ful 5A620	Spi 1600	Tim 35000H	Wis 1337H	Ro 700	Wag	AC	Tim	Bdd	Tut	Own
83		156	Wau SRLR	Mon	Uni	Mic	Str BXUV3	AC	Pfx	DR	DR	USL	AC 75	Spi	Ful 5A430	Spi 1600	Tim 26452TW	Wis 1757W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
84		156S	Wau SRKR	Mon	Uni	Mic	Str DX4	AC	Pfx	DR	DR	USL	AC 74	Spi	Ful 5A620	Spi 1600	Tim 26452TW	Wis 1910W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
85		201	Wau GAK	Mon	Uni	Mic	Str SF5	AC	Pfx	DR	DR	USL	CH 6	Spi C234B	Ful 4A86	Spi 1700	Tim 26452TW	Wis 1910W	Ro 760	Wes	AC	Tim	Bdd	Tut	Own
86		55RH	Wau SRKR	Mon	Uni	Mic	Str DX4	AC	Pfx	DR	DR	USL	AC 75	B&B	Ful 5A620	Spi 1600	Tim 26452H	Tim 76793H	Ro 720	Wag	AC	Tim	Bdd	Tut	Own
87		(D) 127D	Cum AA6	Mon	Uni	Mic	.....	AC	Pfx	DR	DR	USL	OPT	WCL	Ful 5A430	Spi 1700	Tim 33000H	Tim 58300H	Ro 700	Wag	AC	Tim	Bdd	Tut	Own
88		(D) 138D	Her DRXB	Mon	Uni	Mic	.....	AC	Pfx	DR	DR	USL	OPT	WCL	Ful 5A620	Spi 1600	Tim 35000TW	Wis 1337TW	Ro 700	Wes	AC	Tim	Bdd	Tut	Own
89		(D) 156D	Her DRXB	Mon	Uni	Mic	.....	AC	Pfx	DR	DR	USL	OPT	WCL	Ful 5A620	Spi 1600	Tim 26452TW	Wis 1757KW	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
90		(D) 176D	Cum HB600	Mon	Uni	Mic	.....	AC	Yng	DR	DR	USL	OPT	WCL	Ful 4A86	Spi 1700	Tim 26452TW	Wis 1757W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
91		(D) 201D	Cum HB600	Mon	Uni	Mic	.....	AC	Yng	DR	DR	USL	OPT	Spi 2291	Ful 4A86	Spi 1700	Tim 26452TW	Wis 1910W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
92		(c.o.e.) H	Wau MZR	Mon	Uni	Mic	Str DX4	AC	Yng	DR	DR	USL	CH 00-Com	B&B	Ful 5A430	Spi 1500	Tim 58300H	Ro 720	Wag	AC	Tim	Bdd	Tut	Own	
93		(c.o.e.) K	Wau SRLR	Mon	Uni	Mic	Str BXUV3	AC	Yng	DR	DR	USL	AC 75	Spi	Ful 5A620	Spi 1600	Shu 672B1	Wis 1337H	Ro 720	Wag	AC	Tim	Bdd	Tut	Own
94		(c.o.e.) L	Wau SRKR	Mon	Uni	Mic	Str DX4	AC	Yng	DR	DR	USL	AC 74	Spi	Ful 5A620	Spi 1600	Shu 673B12	Wis 1757W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
95		(c.o.e.) J	Wau MZR	Mon	Uni	Mic	Str DX4	AC	Yng	DR	DR	USL	CH 00-Com	B&B	Ful 5A430	Spi 1500	Shu 672B1	Wis 1337H	Ro 720	Wag	AC	Tim	Bdd	Tut	Own
96		(D) (c.o.e.) LD	Cum HB600	Mon	Uni	Mic	.....	AC	Yng	DR	DR	USL	OPT	WCL	Ful 4A86	Spi 1700	Shu 673B12	Wis 1757W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
97		(D) (c.o.e.) MD	Cum HB600	Mon	Uni	Mic	.....	AC	Yng	DR	DR	USL	OPT	WCL	Ful 4A86	Spi 1700	Shu 673B12	Wis 1910W	Ro 720	Wes	AC	Tim	Bdd	Tut	Own
98		204	Wau SRKR	Mon	Uni	Mic	Zen IN167	AC	Pfx	DR	DR	USL	AC 74	B&B 14Q	Ful 5A620	Spi 1600	Wis F427W	Wis 1757W	Ro 780	Wes	AC	Tim	Bdd	Tut	Own
99		108	Wau BK	Mon	Uni	Mic	OPT	AC	Pfx	DR	DR	USL	CH 00	Spi	Ful 5B33	Spi 1500	Wis F544B	Tim 54411	OPT	OPT	AC	Tim	Bdd	Tut	Own
100		128	Wau MZR	Mon	Uni	Mic	Str DX4	AC	Pfx	DR	DR	USL	CH 00	Spi	Ful 5A43	Spi 1500	Wis F213	Wis 72000	OPT	OPT	AC	Tim	Bdd	Tut	Own
101		158	Wau SRKR	Mon	Uni	Mic	Str DX4	AC	Pfx	DR	DR	USL	AC 74	Spi	Ful 5A62	Spi 1600	Wis F417	Wis 1337	OPT	OPT	AC	Tim	Bdd	Tut	Own
102	Warford	DC-2	Frd 90HP	NS	Frd	Fram	Frd	AC	Frd	Frd	Frd	Frd	CH H9	Frd	F-O	FSB	Frd	F-Tm	Frd	Frd	Frd	Frd	KH	F-O	F-O
103		WC-2	Che	NS	AC	NS	Car	AC	Har	DR	DR	DR	AC 44, 104	Che	C-O	CSB	Che	Che	Che	Che	Che	Che	KH	C-O	C-O
104		DC-1	Frd 100HP	NS	Frd	Fram	Frd	AC	Frd	Frd	Frd	Frd	CH H9	Frd	F-O	FSB	Frd	F-Tm	Frd	Frd	Frd	Frd	KH	F-O	F-O
105		WC-1	Che	NS	AC	NS	Car	AC	Har	DR	DR	DR	AC 44, 104	Che	C-O	CSB	Che	Che	Che	Che	Che	Che	KH	C-O	C-O
106	White	WA-14	Own 100A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5783	Own 400B	Spi 1410	Own 32D	Own 100C	Ro TA14	Loc	Own	C-D	C-D	ESS	Own
107		WA-18	Own 110A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5783	Own 401B	Spi 1410	Own 49D	Own 101C	Ro TA21	Loc	Own	C-D	C-D	ESS	Own
108		WA-20	Own 120A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5801	Own 552B	Spi 1500	Own 54D	Own 102C	Ro T26	Loc	Own	C-D	C-D	ESS	Own
109		WA-22	Own 140A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 16D	Own 33C	Ro T70	Loc	Own	C-D	C-D	ESS	Own
110		WA-26	Own 140A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 24D	Own 43C	Ro T70	Loc	Own	Day	Day	ESS	Own
111		WA-34	Own 140A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 9D	Own 45C	Ro T70	Wes	Own	Day	Day	ESS	Own
112		720	Own 15A	Own	AM	DeL	Zen 457	AC	Mod	DR	DR	W-E	CH 0-Com	Own 326748	Own 36B	Spi 1600	Own 24D	Own 43C	Ro 720	Loc	T-S	Day	Day	ESS	Own
113		722	Own 25A	Own	AM	DeL	Zen 457	AC	Mod	DR	DR	W-E	CH J10-Com	Own 342857	Own 36B	Spi 1600	Own 6D	Own 45C	Ro 720	Wes	T-S	Day	Day	ESS	Own
114		(c.o.e.) WA-114	Own 100A	Han	AC	DeL	Str UUR2	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5783	Own 400B	Spi 1410	Own 29D	Own 100C	Ro T26	Loc	Own	C-D	C-D	ESS	Own
115		(c.o.e.) WA-118	Own 110A	Han	AC	DeL	Str UUR2	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5783	Own 401B	Spi 1410	Own 29D	Own 101C	Ro T26	Loc	Own	C-D	C-D	ESS	Own
116		(c.o.e.) WA-120	Own 120A	Han	AC	DeL	Str 2BK322	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5801	Own 552B	Spi 1500	Own 23D	Own 102C	Ro 720	Loc	Own	C-D	C-D	ESS	Own
117		(c.o.e.) WA-122	Own 140A	Han	AC	DeL	Str 2BK322	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 30D	Own 33C	Ro 720	Loc	Own	C-D	C-D	ESS	Own
118		(c.o.e.) WA-126	Own 140A	Han	AC	DeL	Str 2BK322	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 28D	Own 43C	Ro 720	Loc	Own	Day	Day	ESS	Own
119		(c.o.e.) WA-134	Own 140A	Han	AC	DeL	Str 2BK322	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 34D	Own 45C	Ro 720	Wes	Own	Day	Day	ESS	Own
120		(c.o.e.) 820	Own 15A	Own	AM	DeL	Zen 457	AC	Mod	DR	DR	W-E	CH 0-Com	Own 326748	Own 58B	Spi 1600	Own 34D	Own 43C	Ro 720	Wes	T-S	Day	Day	ESS	Own
121		(c.o.e.) 822	Own 25A	Own	AM	DeL	Zen 457	AC	Mod	DR	DR	W-E	CH J10-Com	Own 342857	Own 58B	Spi 1600	Own 34D	Own 45C	Ro 720	Wes	T-S	Day	Day	ESS	Own
122		WA-2064	Own 120A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	Lng 5801	Own 552B	Spi [17]	Own 49D	Own 41C	Ro T26	Loc	Own	[20]	[20]	ESS	Own
123		WA-2264	Own 140A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi [18]	Own 40D	Own 75C	Ro T70	Loc	Own	Day	Day	ESS	Own
124		WA-3464	Own 140A	Han	AC	DeL	Str AAV2	AC	Yng	DR	DR	W-E	CH J10-Com	WCL14SP-4200	Own 551B	Spi 1600	Own 50D	Own 77C	Ro T70	Wes	Own	Day	Day	ESS	Own
125		920	Own 15A	Own	AM	DeL	Zen 457	AC	Mod	DR	DR	W-E	CH 0-Com	Own 326748	Own 36B	Spi 1600	Own 40D	Tim SDD352	Ro 720	Wes	T-S	Day	Day	ESS	Own
126		922	Own 25A	Own	AM	DeL	Zen 457	AC	Mod	DR	DR	W-E	CH J10-Com	Own 342857	Own 36B	Spi 1600	Own 12D	Tim SW452	Ro 720	Wes	T-S	Day	Day	ESS	Own
127		White Horse A	Own 35A	Zen	Uni	Mic	Zen 28BVX9CR	AC	NS	AL	AL	Wil	CH J5	Lng 10CF-C1	Own 303B	None	Own 41D	Own 72C	Sag [19]	Loc	Own	Cla	Cla	ESP	Own
128	Willys	SC442	Own 442	NS	AC	NS	Car WO507S	AC	Jms	AL	AL	A-U	CH J9	AB	War T84G	UP 4100-11	Own 442	Spi 41-4	Ro T12	Ben	Own	KH	KH	Mat	Own
129		SCOE 442P	Own 442P	Han	AC	NS	Car WO507S	AC	Jms	AL	AL	A-U	CH J9	AB	War T84G	UP 4100-11	Own 442P	Spi 41-4	Ro T12	Ben	Own	KH	KH	Mat	Own
130		SC441	Own 441	NS	AC	NS	Car WO507S	AC	Jms	AL	AL	A-U	CH J9	RB	War T84G	UP 4100-11	Own 441	Spi 21-1	Ro T12	Ben	Own	KH	KH	Mat	Own
131		SCOE441P	Own 441P	Han	AC	NS	Car WO507S	AC	Jms	AL	AL	A-U	CH J9	RB	War T84G	UP 4100-11	Own 441P	Spi 21-1	Ro T12	Ben	Own	KH	KH	Mat	Own
132		SC440	Own 440	NS	AC	NS	Car WO450S	AC	Jms	AL	AL	A-U	CH J9	RB	War T84D	UP 4100-6	Own 440	Spi 21-1	Gem 120	Bm	Own	KH	KH	Mat	Own
133		SCOE440P	Own 440P	Han	AC	NS	Car WO450S	AC	Jms	AL	AL	A-U	CH J9	RB	War T84D	UP 4100-6	Own 440P	Spi 21-1	Gem 120	Bm	Own	KH	KH	Mat	Own

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A new wheel and steering alignment manual dealing with trucks has been prepared by a well known authority for distribution to fleet operators. The manual is comprehensive and treats front-end maintenance in a practical way. For example, an excellent and thorough alignment inspection procedure is given showing 24 important steps, practically all of which are illustrated photographically. Tire rotation, steering gear checking steps and wheel balancing also are well treated and illustrated. An excellent trouble shooting chart is included which gives in brief, condensed form the reasons and corrections for excessive tire wear, hard steering shimmy conditions and seven other tire killing and chassis damaging front-end faults. Write L45 on the post card for your free copy.

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Good manuals on engine reconditioning and engine rebuilding are in demand. This 32-page publication deals with the most efficient methods of each type of overhauling job and provides engineered recommendations derived from actual shop procedures. The treatment is complete in that it embraces time and equipment factors in addition to maintenance problems. Included is a section on re-ringing practices which is illustrated to show right and wrong methods. Write L46 on the post card for your free copy.

L47. Valve Service Bulletin

Valuable and practical service data on the easiest and quickest way to grind Ford valves has just been released in a convenient size 16-page booklet. Included are Lincoln-Zephyr, Mercury, the new 6-cyl. Ford, the two V-8s, the 4-cyl. models and the Ford tractor. The facts, complete from dismantling the engine to reassembling and valve timing, are thorough and practical. This bulletin has been prepared to sell for 25 cents but copies are available free of cost to CCJ readers. Write L47 on the post card for your copy.

L48. Clutch Service Manual

Maintenance men who like specific data on certain types and makes of replacement parts will appreciate this 42-page manual on Borg-Warner clutches. The assembly and adjustment procedures are outlined in a very complete and specific manner, profusely illustrated with photographs and drawings showing the clutch mechanism from every angle in operating and non-operating positions. Clutch pedal settings for the different vehicles are shown as are right and wrong adjustments. Write L48 on the post card for your free copy.

L49. Distributor Service Manual

Engine performance and gasoline economy are directly related to the efficiency of the distributor in the electrical system. How to get the highest efficiency out of distributors is the basis of this comprehensive manual released for distribution among fleet operators. Treatment of the various steps in adjusting and servicing distributors is thorough and practical. Write L49 on the post card for your free copy.

L50. Vacuum Power Brake Book

Of the numerous worth-while literature available to fleet operators, this book on vacuum power brakes unquestionably merits selection. While prepared for the basic training of truck maintenance students and brake service apprentices, this book should prove to be very valuable to experienced brake service men and all-round mechanics. It contains 128 pages of authoritative facts which are divided into five chapters. Chapter One deals with the basic principles of vacuum and atmospheric pressure and their application to modern braking requirements. Chapter Two discusses the early history and development of the B-K braking principle. Chapter Three gives a complete picture of present day power braking. Chapters Four and Five cover the various units and types of installations now in use. Write L50 on the post card for your free copy.

L51. Carburetor Service Manual

Overhaul procedures based on the results of field service studies are incorporated in this manual on Stromberg carburetors. As

(Turn to Page 170, Please)

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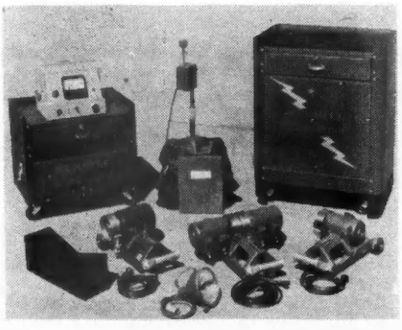
The latest in shop equipment, supplies, replacement parts and accessories developed by manufacturers for fleet operators. For more details of any product described, fill in the number on the postcard and mail. No stamp needed. Also use the postcard for additional information on any product advertised in this issue.

P58. Electronic Wheel Balancer

An electronic wheel balancer which balances front and rear wheels both statically and dynamically without removing them from the vehicle is now available. It is manufactured by the Merrill Engineering Laboratories, Denver, Colo.

Heavy Duty Model No. 68 consists of a cabinet, a pick-up unit, to transform vibrations from the vehicle into electrical



energy, a power unit, which amplifies the energy from the pick-up, records the vibrations on a meter and controls the stroboscope; a drive and brake unit, for spinning and stopping wheels; a stroboscope, a rear wheel block and 60 assorted weights.

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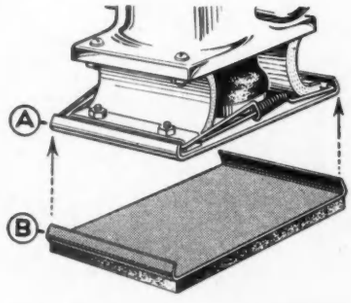
P59. Electric Sander

For the operator who does sanding of bodies, fenders, etc., there is now available a new model "Easy Electric Sander," just announced by the Detroit Surfacing Machine Co., Detroit, Mich. This new model sander, known as the XLD, is a reciprocating electric sanding machine. It features a



detachable bottom plate, permitting instant removal of one type or size pad and the installation of another. In previous models the sanding pads were fixed to part "A," and quick change was not possible. Detachable bottom plates are available with pads of sponge rubber, felt, or composition in widths from 1 in. to 3¾ in., and ¼ in. to 1 in. thick. Regardless of the application, but a moment is required to attach the correct type or size sanding pad.

The reciprocating action of the sander duplicates the back and forth motion of hand work. Speed of operation is 3000 strokes per minute as compared to approximately 150 S.P.M. by hand. Power is furnished by a heavy duty electric motor of special design, in either 115 or 230 volt models. The unit weighs approximately 7½ lbs.

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P60. Cement Floor Cleaner

The problem of many fleet operators in keeping their garage and shop floors clean will be made easier by the use of "Turco Aktiv," cement floor cleaning compound, according to the claims of Turco Products, Inc., Los Angeles. The manufacturer claims that it is a radically different cleaner, not to be confused with the old type fuming, inflammable acid or toxic cleaners which are hazardous to shoes, clothing and the safety of workmen. It is so mild chemically that it can be handled with no extraordinary precautions. It will attack and emulsify grease as soon as it comes in contact with it and dissolves it so that it can be easily flushed away with a water hose. Even the heaviest deposits can be removed in five minutes. Floors kept clean of oil and grease will do much to prevent tire deterioration.

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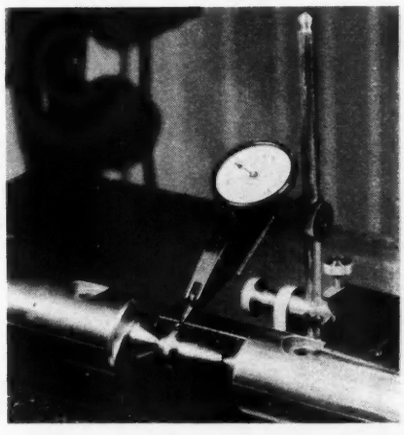
P61. Cylinder and Dial Gages

Two instruments are now offered by the Federal Products Corp., Providence, R. I., which can be used by fleet operators who are trying to conserve and salvage parts. One is a cylinder gage which will test all cylinders for straightness and roundness; accurately measure taper and out-of-roundness; compare sizes of cylinders, and tell



amount of oversize pistons and rings to use. The use of a cylinder gage will help the operator to turn out a better engine rebuilding job.

A dial indicator is also offered, which can be applied for testing various kinds of conditions found in truck repair work. It can be used for alignment inspection, testing out-of-roundness, squareness and many other conditions common to truck operators.

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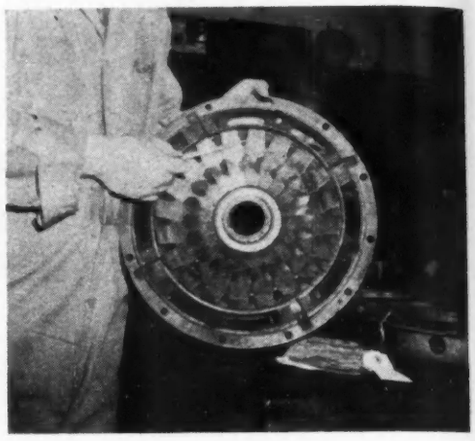
P62. Tool Marker

Now that certain tools are hard to get, every mechanic will welcome a new elec-

(Turn to Page 170, Please)



There are a few parts, like the pressure plate segment in the clutch disc illustrated above, that may be reversed when worn and replaced without difficulty for many miles of service

Reviewing some repair and rebuilding jobs that fleet operators are employing in an effort to conserve essential truck parts

PARTS

INASMUCH as the maintenance and repair of trucks is a continuous process, no doubt every fleet operator already has had numerous experiences with WPB Limitation Order L-158, directly or indirectly. Replacement parts being manufactured under this order represent only the number required to maintain the efficiency of the country's essential motor transportation system.

While the inability to procure parts at will has caused some inconvenience, it also has presented a challenge to the skill and resourcefulness of mechanics to rebuild and repair every possible worn automotive part. The best examples of what can be done in salvaging and repairing parts have come from the repair shops of fleet operators.

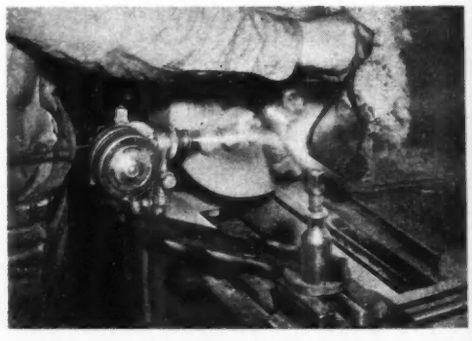
Within the past year, a large number of fleet shops have undertaken extensive salvage programs. Starting with simple cleaning, straightening, patching and painting, new repair techniques have been tried and successfully developed to include skilled welding, coating, grinding and machining operations. From the roof to the tires, from the front end to the rear, there's hardly a unit that hasn't been the object of experiment with good results.

The cost angle is no longer considered solely on its merits. Fleet operators admit that many parts cost more to salvage and rebuild than the cost of new parts, while other parts cost less. The problem today is one of conservation of strategic and critical materials.

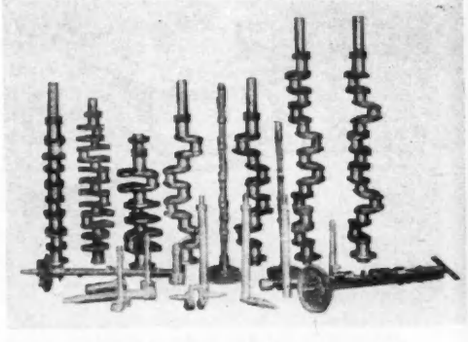
The salvage work illustrated on these pages, presented just to give a rough idea of what can be done, is being accomplished with nothing more than the usual tools found in any well-equipped shop. Where processes require expensive and highly specialized equipment, fleet operators can find outside shops where this work is being handled as a specialty.

A list of parts that are salvageable would be almost as long as the list of parts entering into the original design of a truck. Consequently no attempt is made here to furnish a comprehensive listing. But for a partial list that will provide encouragement, fleet operators are referred to the article on page 44 of the October issue of COMMERCIAL CAR JOURNAL.

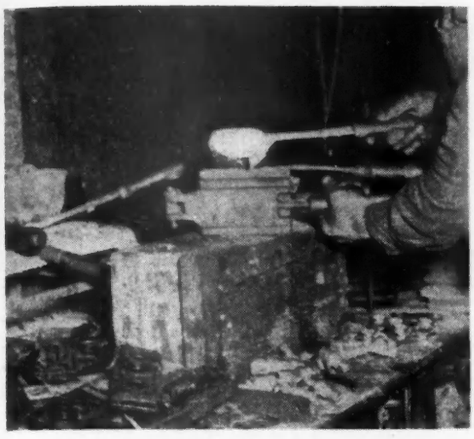
(ADDITIONAL PARTS SALVAGE PICTURES ON PAGE 206)



Steering arm spindle pin above is being salvaged by spraying metal coating on worn area. Data on this job reveals spraying time was 8 min.; material, little over 1 lb. of 1/8-in. wire

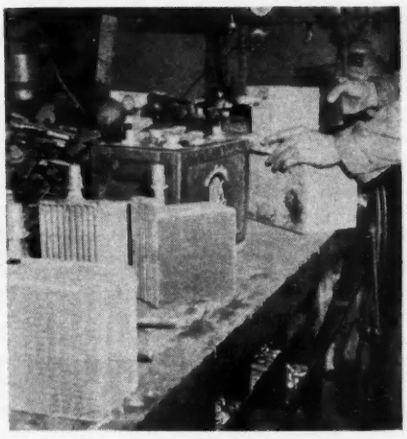


These crankshafts and camshafts are a profitable example of salvage. The job was done below original replacement cost by metal spraying and grinding to required size and finish



In this illustration the battery man is casting new terminals, terminal posts and connectors. This is a profitable salvage possibility because the waste factor is very low

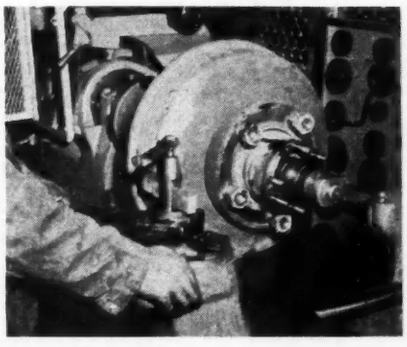
Battery man above is inspecting a number of newly reconditioned cables. Frayed ends were trimmed, bad terminals replaced, etc. Now they are ready for service, as good as new



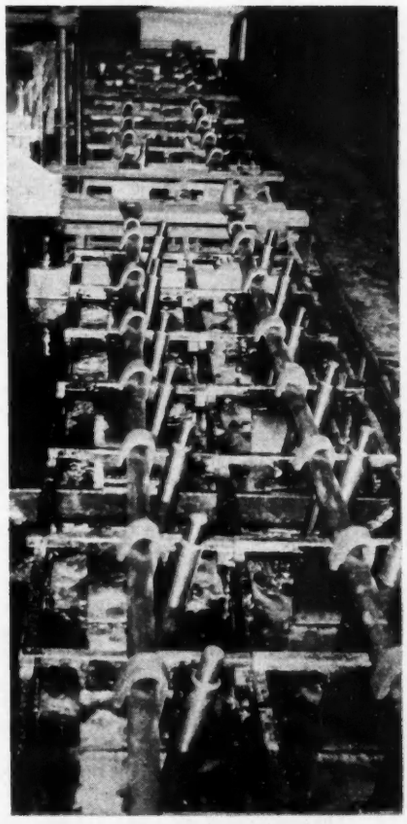
Many large fleets are salvaging and rebuilding batteries profitably. Good grids, separators, etc., are reconditioned and re-assembled into good cases to provide many spares

SALVAGE IN PICTURES

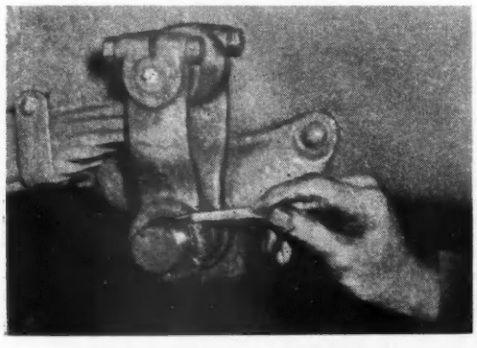
Welding a die-cast aluminum carburetor body. Once considered a difficult technique, this welding job can be mastered by anyone familiar with the basic principles of gas fusion



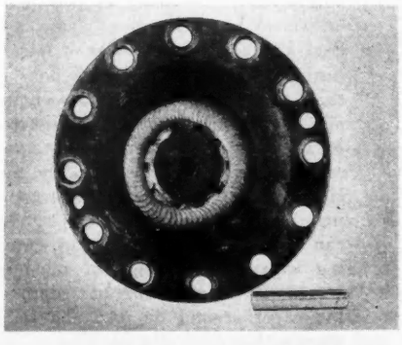
Some wheel changes require turning edge of brake drum to provide necessary clearance. Here, mechanic turns down a 20-in. drum for use with wheels equipped with 7.00/18 tires



Above illustration shows a number of shafts being salvaged by hard chrome plating. The results reported by fleet operators trying this process appear to be exceptionally good



Some shops fill worn hangers by welding and ream to size; build up pins by welding, machine to size. Above, new bushings used in hanger; pin wear shimmed with old bushing



One way of salvaging a rear axle shaft flange is to counter-bore the flange, drill holes around the flange, drive valve stems into the holes and weld stems in position to hold tight

STORAGE MAINTENANCE

These WPB instructions on storing trucks for long periods are designed to safeguard fleet investment

FLEETS which may find it necessary to put some vehicles in storage because of curtailed operations will find a useful guide in the instructions compiled by the War Production Board. These instructions are incorporated in Order M-216 which governs the storage of new vehicles subject to rationing. The Office of Defense Transportation recommends them for voluntary use by fleet operators.

As published here the instructions are edited for truck operators. The instructions are itemized and tell when the work should be done and what should be done. The items are numbered in the order in which they should be performed.

All of the instructions are applicable to trucks and passenger cars. The items applicable to trailers bear an asterisk (*).

*1. Vehicle (Do initially and whenever necessary)
   (a) Thoroughly wash vehicle; remove all foreign substances, mud, dirt, grease spots, oil, tar.
   (b) Check paint, touch up all exposed metal surfaces to prevent rust.

2. Windshield Wiper (Do initially)
   Remove blades; store in glove compartment.

3. Upholstery and Floor-Coverings (Do initially and every six months)
   (a) Clean and moth-proof all upholstery, including seat cushions, seat backs, side-walls, headlinings, floor mats and carpets. After moth-proofing upholstery, protect it from direct sunlight. Place floor mats in their normal position on floor, not rolled up.

4. Chrome-plated Surfaces (Do initially and whenever necessary)
   Thoroughly wash and clean all chrome-plated surfaces with clear water; when dry, apply a coating of light oil, liquid wax or special preparation; wipe off until no excess oil or wax appears on the surface of the chrome.

5. Engine (Do initially)
   (a) Drain engine oil and refill crankcase with at least one-half charge of rust-inhibiting oil.
   (b) Run engine for 5 minutes at idle speed or about 1000 rpm. Leave this oil in engine.

6. Fuel System and Carburetor (Do initially)
   (a) Drain gasoline tank completely and replace filler cap to exclude dust.
   (b) Run engine until all gasoline is consumed.

7. Spark Plugs (Do initially)
   Remove spark plugs. Inject 2 ounces of rust inhibiting oil into each cylinder when piston is on the power stroke. Slowly turn engine over a few revolutions with starter. Replace spark plugs.

8. Valve Compartment—overhead valve engines. (Do initially
   Remove cover. Spray rust-preventive compound or S.A.E. 10-W on mechanism and inside cover, or pack with oil-soaked rags. Replace cover.

9. Seal Engine (Do initially)
   Seal the engine. This can be done in the following manner: Remove engine oil filler tube cover and crankcase breather cover, if there is one, and seal the openings. Also seal the air-cleaner, tail pipe, and any other openings into the engine. Tubes or pipes can be sealed satisfactorily by covering with a small piece of oiled or waxed paper, gathering the edges of the paper around the two and tying them with a cord. The air cleaner can be sealed conveniently by covering with a paper bag and tying a cord around it at the solid part on the engine side of the air intake openings. Sealing the engine to a large extent prevents air moisture from entering the engine.
   Note.—Since no provision has been made for turning the engine over at regular intervals, it is absolutely essential that the recommended procedure for conserving the engine be followed carefully.

10. Battery Removal (Do initially)
   (a) Remove the battery and store it in a cool place near recharging equipment, to facilitate servicing. Clean battery connections and wipe with light grease.
   (b) If shop has portable battery charging equipment, it may elect to leave battery in vehicle. In either case battery must be maintained as per Item 12 below.

11. Battery Maintenance (Do initially and as specified below)
   (a) Check the specific gravity at regular intervals of six weeks, except in extremely hot weather when inspection should be cut to three weeks.
   (b) Check and correct water level at each inspection and recharge battery as necessary to bring gravity reading to 1.280 or above. In no case should the specific gravity be allowed to fall below 1.220. These specific gravity readings are given for batteries at 60°F. air temperature.

12. Cooling System (Do initially)
   Completely drain cooling system including radiator, cylinder block, pump, heater, hose and all water connections. Leave system dry.
   Note.—If coolant contains anti-freeze or rust-inhibiting solution, it may be left in the cooling system.

*13. Brakes (Do initially)
   Leave all brakes in released position.

14. Clutch (Do initially)
   Block the pedal of dry clutches in partially disengaged position. It is not necessary to disengage other type clutches.

*15. Tires (Do initially and as specified below)
   Jack up vehicle in storage location taking weight off the tires. Maintain the air in tires between 1/3 and 2/3 operating pressure so that vehicles can be pushed or towed out quickly if necessary in an emergency. Tension in cords will be relieved by lowered pressure.

*16. Hood Latches, Hinges, Brake Connections. (Do initially and, if necessary, every six months where applicable)
   Lubricate with light oil all hood latches, hinges, and brake connections.

*17. Doors and Windows (Do initially where applicable)
   (a) Close all doors and windows tightly.
   (b) Close all venti-panes.
   (c) Leave cowl ventilator open (if screened).

PREVENTIVE MAINTENANCE

ROUTINE RECOMMENDED BY ODT

1000-MILE INSPECTION ★ 15,000-MILE INSPECTION

Date.....Truck No.....Make.....Mileage.....

1. Lubricate according to manufacturer's recommendations.
2. Check crankcase oil level.
3. Check differential and transmission lubricant level. Examine for leaks.
4. Fill radiator with water. Check antifreeze if necessary. Tighten all hose connections.
5. Check distributor points. Clean and adjust if necessary. (See manufacturer's manual for spacing.)
6. Clean and adjust spark plugs. (See manufacturer's manual for spacing.)
7. Check ignition timing and oil-distributor wick and fill distributor grease cup.
8. Adjust fan and compressor belts. Replace belts when necessary.
9. Tighten water-pump gland nut. Replace pump packings when necessary.
10. Clean fuel-pump strainer, bowl, and carburetor strainer.
11. Adjust carburetor (with vacuum gage if possible).
12. Inspect for gas, oil, or water leaks, examine with engine hot and running.
13. Take hydrometer reading of all battery cells. Add distilled water when necessary.
14. Adjust clutch pedal for clearance and travel. Check hand brake, connections, and travel.
15. Check oil pressure and ammeter charging rate.
16. Check all other instruments.
17. Check steering wheel for play.
18. Inspect universal joints for looseness.
19. Tighten brake connections and check brake-pedal travel, drain water from air or vacuum tanks, check master cylinder fluid level (hydraulic).
20. Inspect radius rods.
21. Test all lights, check reflectors.
22. Tighten all wheel nuts.
23. Inflate tires and spare. Check front wheel toe-in. Adjust if necessary. Check tires for cuts or bruises. Repair immediately.
24. Check tractor-trailer brake and light connections.
25. Check tractor-trailer fifth wheel.
26. Road test truck.

Date.....Truck No.....Make..... ....Mileage. .. .

1. Lubricate according to manufacturer's recommendations.
2. Check crankcase oil level. Remove and clean crankcase ventilator. Clean or replace oil-filter cartridge. Tighten oil-line connections. Remove and clean oil pan and oil pump. Check bearings for excess clearance. Clean all outside oil lines.
3. Tighten motor support bolts.
4. Check differential and transmission lubricant level. Examine for leaks.
5. Check compression. Grind valves if necessary. Clean overhead mechanism. Clean side plates and block. Adjust valves according to manufacturer's recommendations.
6. Check distributor points. Clean, adjust, and synchronize. Clean rotor and cap. (See manufacturer's manual for spacing.)
7. Test coil and condenser.
8. Clean and adjust spark plugs. (See manufacturer's manual for spacing.)
9. Check ignition timing and oil-distributor wick and full distributor grease cup.
10. Adjust fan and compressor belts. Replace belts when necessary.
11. Tighten water-pump gland nut. Replace pump packing when necessary. Tighten hose connections. Replace hose if necessary. Tighten radiator, hold-down bolts, and tie rods. Fill radiator with water. Check antifreeze if necessary.
12. Clean fuel pump strainer, bowl, and carburetor strainer. Test pump outlet pressure. Overhaul or install rebuilt fuel pump if necessary.
13. Check carburetor float level Adjust carburetor (with vacuum gage if possible). Clean air cleaner. Check choke adjustment. Tighten manifolds and carburetor flange. Adjust throttle linkage.
14 Inspect for gas, oil, or water leaks, examine with engine hot and running.
15 Take hydrometer reading of all battery cells. Add distilled water when necessary. Clean and tighten connections. Tighten battery in box.
16. Adjust clutch pedal for clearance and travel. Check hand brake, connections, and travel.
17. Check oil pressure and ammeter charging rate. Adjust charging rate if necessary.
18. Clean generator. Check brushes. Tighten connections. Test.
19. Check starter. Tighten cable connections at starter Clean commutator.
20. Check all other instruments.
21. Tighten and adjust all steering connections. Align front wheels, check king pins and tie rod ends. Check for bent axle and alignment.
22. Tighten universal joints and flanges. Check condition of hanger bearing.
23. Remove all wheels and check brake drums and lining. Clean and repack wheel bearings. Tighten all hydraulic or air brake connections. Check for leaks and line pressure. Drain water from air or vacuum tanks. Fill hydraulic master cylinder. Adjust and test brakes. Check all operating mechanism.
24. Tighten radius rods. Tighten differential cover and carrier bolts. Check ring gear adjustment.
25. Test all lights, check reflectors. Check all wiring and connections.
26. Tighten all wheel-hub stud nuts and rim retaining nuts. Tighten all spring clips and U-bolts. Check shackles and spring pins. Check springs for broken leaves. Rearch springs if ncessary.
27 Inflate tires and spare to proper pressure. Check tires for cuts or bruises or signs of unequal wear Repair immediately. Retread smooth, worn tires.
28. Tighten fenders, running boards, and aprons. Tighten cab, seat, and body bolts. Check windshield wiper and hose.
29 Check tractor-trailer brake and light connections. Check all wiring.
30. Check tractor-trailer fifth wheel.
31. Road test truck; check governor; and note general condition of frame and connections.

5000-MILE INSPECTION

Date. ... ..Truck No.. .....Make..... .....Mileage.

1. Lubricate according to manufacturer's recommendations.
2. Check crankcase oil level. Remove and clean crankcase ventilator. Clean or replace oil filter cartridge. Tighten oil-line connections.
3. Check differential and transmission lubricant level. Examine for leaks.
4. Fill radiator with water. Check antifreeze if necessary. Tighten all hose connections.
5. Check distributor points. Clean, adjust, and synchronize if necessary. Clean rotor and cap. (See manufacturer's manual for spacing.) Test coil and condenser.
6. Clean and adjust spark plugs. (See manufacturer's manual for spacing.)
7. Check ignition timing and oil-distributor wick and fill distributor grease cup. Adjust valves according to manufacturer's recommendations.
8. Adjust fan and compressor belts. Replace belts when necessary.
9. Tighten water-pump gland nut. Replace pump packings when necessary. Tighten radiator hold-down bolts and tie rods.
10. Clean fuel-pump strainer, bowl, and carburetor strainer. Test pump outlet pressure.
11 Adjust carburetor (with vacuum gage if possible). Clean air cleaner, check choke adjustment, tighten manifolds, carburetor flange, and adjust throttle linkage.
12. Inspect for gas, oil, or water leaks, examine with engine hot and running.
13. Take hydrometer reading of all battery cells. Add distilled water when necessary. Clean and tighten connections. Tighten battery in box.
14. Adjust clutch pedal for clearance and travel. Check hand brake, connections, and travel.
15. Check oil pressure and ammeter charging rate. Adjust charging rate if necessary.
16. Check all other instruments.
17 Check steering wheel for play. Align front wheels and make all necessary adjustments.
18. Inspect universal joints for looseness.
19. Tighten brake connections and check brake-pedal travel, check for leaks, check line pressure, drain water from air or vacuum tanks, check master cylinder fluid level (hydraulic) Adjust brakes.
20. Inspect radius rods.
21. Test all lights, check reflectors.
22. Tighten all wheel nuts. Inspect differential carrier and cover bolts.
23. Inflate tires and spare. Check front wheel toe-in. Adjust if necessary. Check tires for cuts or bruises. Repair immediately. Retread bald tires.
24. Check tractor-trailer brake and light connections.
25. Check tractor-trailer fifth wheel.
26. Inspect springs, spring clips, and U-bolts.
27. Road test truck; check governor.

DRIVER'S DAILY REPORT

Name. .. ..Date.....Truck No.....Make..... Odometer.. ....

DRIVER'S CHECK LIST

Oil pressure	Tires, rims, wheels	Gear shift and transmission
Water temperature	Windshield wiper	Foot-brake system
Generator	Rear-vision mirrors	Hand-brake system
Lights and horn	Engine noises	Steering
Speedometer	Spark control	Power take-off
Windows and doors	Choke control	Leaks—Oil, fuel, water
Starter	Fuel control	
Battery	Clutch	

Reading from top to bottom: Block should be bored with standard boring bar down to within .0005 in. to .001 in. of the desired measurement. Then a hone should be used to clean up the .0005 in. to .001 in. of metal that was left after boring. Proper size rings should then be installed

REBORE AND RERING REVIEW

Wear standards and instructions for engine overhauls that will enable fleets to get the last mile out of powerplants

Note: This is the third in a series of technical releases prepared by the Transportation and Maintenance Activity Section of the Society of Automotive Engineers, at the request of the Vehicle Maintenance Section, Division of Motor Transport, Office of Defense Transportation, in the campaign to keep America's trucks rolling.

REBORING of cylinder blocks and fitting of pistons in reconditioned cylinders are important conservation measures that should be followed by every truck operator. This article gives practical answers to every problem encountered in the reconditioning of pistons and cylinders. It contains the experience of leading automotive engineers and fleet operators and can be followed as a guide to proper procedure in these operations.

The first problem encountered is the determination of the suitability of the cylinder block for reboring. Since measurements for reboring or reringing vary considerably in different operations and under different conditions usage should determine measurements in each case. The manufacturers' recommendations should be followed and the use must be made of inside micrometers or a cylinder gage to determine the necessity of reboring the block.

Many operators have found it practical to use sets of special piston rings in reringing in order to defer the reboring operation. Experience seems to indicate that unless it is possible to get approximately 50 per cent service from a new set of rings as compared to that obtained from the original set, reboring should be seriously considered.

Reconditioning Periods

Reports from average operations in various types of truck service reveal the following reringing and reboring practices:

Heavy-Duty Service
- Rering at 50,000 miles.
- Rebore at 80,000 miles.

City Delivery Service
- Rering at 25,000 miles.
- Rebore at 40,000 miles.

Engines up to 350 cu. in.
- Rering when oil consumption reaches or exceeds 300 m.p.g.
- Rebore when maximum wear shows .019.

Engines over 350 cu. in.
- Rering when oil consumption reaches or exceeds 200 m.p.g.
- Rebore when maximum wear shows .015 or greater.

Service Station Practice

1. With mileage unknown: When cylinder bore measurement taken 1¼ in. from top of ring travel does not show over .005 in. wear, new rings are installed. Ridge at top of cylinder bore is removed.

2. With mileage unkown: When cylinder bore measurement taken ½ in. from top of ring travel shows less than .012 in. wear, new rings are installed and pistons expanded.

Cylinder Reboring Methods

GRAY IRON BLOCKS AND ALLOY—Any good standard boring bar should be used, boring down to within .0005 in. to .001 in. of the desired measurement. This latter metal, left after boring, should be removed by honing. Bore should always be cleaned and dried thoroughly. A clean block should show no dirt when rubbed with a white rag.

Hard-Sleeved Blocks

The general practice is to rebore dry sleeves (which will not turn in block) in place with a standard boring bar provided sleeves do not exceed 450 Brinell (consult manufacturer for Brinell), in which case they must be ground and honed with a grinder.

Removable sleeves, below 450 Brinell.

should be machined in a jig with boring bar and then honed. Above 450 Brinell, the sleeves should be ground and honed or wet-honed with a drill and hone. *In either case the jig which holds sleeve must be internally finished on and by the machine used to recondition the sleeve.*

Putting Pistons in Reborеs

It is good practice to follow closely the engine manufacturer's recommendation on proper piston clearances during installation. Occasionally the operator will use pistons of different manufacture to the ones suppied by the engine builder, in which case the piston manufacturer can supply the necessary clearances for the particular piston and engine in question.

In cases of emergency, when these recommendations are not available, the following information now being practised and found to be satisfactory is offered for use:

Aluminum Pistons

The various types of aluminum pistons and their average clearance formulas are:

(1) slotted type, (1a) strut type (1b) T-slot with box relief around the wrist pin. All of these use the same average formula clearance of three-quarters of a thousandths of an inch (.00075 in.) clearance per inch (1 in.) diameter of piston at the skirt and four to five thousandths of an inch (.004 in. to .005 in.) per inch (1 in.) diameter of the piston for the ring land clearance.

(2) T-slot cam ground pistons, (2a) T-slot LO-EX cam ground pistons. Pistons of types (2) and (2a) have no average formula for clearance due to the fact that each piston has its own special designed cam dimension.

In case of emergency the average formula as given for (1), (1a) and (1b) above could be used for types (2) and (2a) after first performing the following: Since types (2) and (2a) have no box relief around the wrist pin, it would then be necessary to remove from fifteen to twenty thousandths of an inch (.015 in. to .020 in.) on the entire wrist pin sides of the piston *exclusive of the ring land.* This operation prevents the pistons from overheating and seizing. However, this is for emergency use only, since manufacturer's recommendations for tolerances should be used whenever possible. Care should be taken in installing slot-type pistons to see that slot is opposite the thrust side.

(3) Heavy-duty lynite round ground. The average formula for this type of piston is three-quarters of a thousandth of an inch (.00075 in.) clearance per inch (1 in.) diameter at the skirt and five to six thousandths of an inch (.005 in. to .006 in.) per inch (1 in.) diameter of the piston for the ring land clearance.

Final Fit Check

(Other Than Cam Ground Pistons) —Check pistons in cylinders having on hand two shim stock strips: one to be one-half a thousandth of an inch (.0005 in.) under and the other one-half a thousandth of an inch (.0005 in.) over the desired clearances, both strips to be ½ in. in width and the length of the cylinder barrel.

(Turn to Page 119, Please)

SECTION THREE

FEDERAL WAR-TIME REGULATIONS

ODT General Order No. 3, Revised..... 64
ODT General Order No. 6..... 67
ODT General Order No. 13..... 69
ODT General Order No. 17..... 66
ODT General Order No. 21..... 68
ODT General Order No. 23..... 74
ODT Appendix No. 1 to Orders 3 & 17..... 65
General Permits to Orders 3, 6 & 17..... 70
ODT Regional Managers and Addresses..... 80
ODT District Offices and Managers..... 74
ODT Local Allocation Offices..... 74
ODT Allocation Appeal Boards..... 76
ODT Joint Information Offices..... 80
ODT Joint Action Plans..... 78
Procedure for Submitting Joint Action Plans.....196
Truck Rationing Usage Classification List.....200
OPA Tire Rationing Vehicle Eligibility List.....201

ODT GENERAL ORDER 3

COMMON CARRIERS OVER-THE-ROAD
(Revised and Amended)

TITLE 49—TRANSPORTATION AND RAILROADS

CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION

(General Order O.D.T. No. 3, Revised)

[Edited to include Amendments 1 & 2]

PART 501—CONSERVATION OF MOTOR EQUIPMENT

SUBPART B—COMMON CARRIERS OF PROPERTY

By virtue of the authority vested in me by Executive Order No. 8989, issued December 18, 1941, and by Executive Order No. 9156, issued May 2, 1942, and in order to assure maximum utilization of the facilities, services, and equipment of common carriers by motor vehicle for the preferential transportation of materials of war and to prevent shortages in motor vehicle equipment necessary for such transportation, as contemplated by Section 6 (8) of the Interstate Commerce Act; to conserve and providently utilize vital equipment, material, and supplies, including rubber; and to provide for the prompt and continuous movement of necessary traffic, the attainment of which purposes is essential to the successful prosecution of the war, General Order O.D.T. No. 3, as amended, Title 49, Chapter II, part 501, Subpart B, is hereby revised and amended to read as follows:

IT IS HEREBY ORDERED, That:

Sec.

501.4 Definitions.
501.5 Elimination of waste.
501.6 Loading and operating requirements.
501.7 Exemptions.
501.8 Special or general permits
501.9 Submission of plans for joint action.
501.10 Interchange of traffic; holding shipments; billing and rates applicable.
501.11 Records and reports.
501.12 Carrier liability.
501.13 Division of revenues.
501.14 Filing of tariffs.

AUTHORITY: § § 501.4 to 501.14, inclusive, issued under E.O. 8989, 6 F.R. 6725, and E.O. 9156, 7 F.R. 3349.

§ 501.4 DEFINITIONS. As used herein:

(a) The term "person" means any individual, firm, copartnership, corporation, municipal corporation, association, including a farm cooperative association as defined in the Agricultural Marketing Act, approved June 15, 1929, as amended, or other type of legal entity, or any trustee, receiver, assignee, or personal representative thereof.

(b) The term "property" means anything, except passengers, capable of being transported by motor truck.

(c) The terms "common carrier" and "carrier" mean any person which holds itself out to engage in the transportation of property for the general public in over-the-road service by motor truck for compensation, regardless of the designation of such person under any Federal or State statute.

(d) The terms "motor truck" and "truck" mean either (1) a straight truck, (2) a combination truck-tractor and semi-trailer, (3) a full trailer, (4) or any combination thereof, (5) or any other rubber-tired vehicle propelled or drawn by mechanical power when used in the transportation of property. ... ...

(e) The term "gross weight" means the aggregate weight of a motor truck and its lading.

(f) The term "rated load carrying ability" as applied to a truck means the weight which the tires mounted on the load bearing wheels of such truck are capable of carrying as determined in the manner set forth in Appendix No. 1 attached hereto.

(g) The terms "capacity load" or "loaded to capacity" as applied to a truck mean either (1) the quantity of property, by weight which may be carried in said truck, determined by deducting the weight of said truck from its rated load carrying ability, or (2) the maximum quantity of property, by volume, which may be stowed by efficient methods and safely transported in the load bearing space of the truck, whichever quantity is the lesser in weight.

(h) The term "over-the-road service" means all operations of a motor truck except (1) those within an area which includes any municipality or urban community and a zone extending twenty-five (25) air miles from the boundaries thereof; (2) those within and between contiguous municipalities or urban communities; and (3) those not more than twenty-five (25) miles in length, except those operations by a carrier between its terminals.

(i) The term "highway" means the roads, highways, streets and ways in any State.

(j) The term "circuituous route" means any highway route or routes or combination thereof, the mileage of which exceeds the mileage of the most direct highway route by ten (10) per cent or more. Highway mileage of such route shall be as shown in the current edition of the Rand McNally Road Atlas of the United States, Canada, and Mexico.

(k) The term "special equipment" means any low-bed motor truck, or any motor truck the primary carrying capacity of which is occupied by mounted machinery.

§ 501.5 ELIMINATION OF WASTE. Every common carrier shall:

(a) Eliminate wasteful operation and duplication of parallel services, and curtail schedules and services to the extent necessary to carry out the purposes of this subpart;

(b) Conserve and properly maintain tires, motor trucks, and other facilities necessary in conducting the business of such common carrier;

(c) Lease or rent motor trucks whenever practicable and to the extent necessary to carry out the purposes of this subpart.

§ 501.6 LOADING AND OPERATING REQUIREMENTS

(a) No common carrier shall operate any motor truck in over-the-road service unless it is loaded to capacity, except as follows:

(1) A motor truck, while outbound from the origin point of a trip to the point most distant therefrom to which the truck is operated on such trip, and also while inbound, may be operated on a portion of the route or routes traveled while empty or partially laden, if, during the course of the outbound or inbound movement, the truck is laden with a capacity load while operated over a considerable portion or segment of the route or routes traveled in over-the-road services, and if the carrier uses due diligence as hereinafter provided in maintaining a capacity load upon the truck at all times while en route.

(2) No carrier shall be deemed to have used due diligence as provided in subparagraph (1) of this paragraph (a) in loading or maintaining a capacity load upon a truck unless, consistent with any prior commitments involving the use of said truck en route, the carrier and its representatives, including the representative in immediate control and possession of the truck, shall have endeavored in good faith, prior to its departure from any point with less than a capacity load, to obtain sufficient freight for loading the truck with a capacity load at such point and, failing in this, shall have endeavored in good faith to secure as much freight as possible for loading on said truck at such point, by making appropriate inquiry at and registering with the joint information office, established pursuant to General Order O.D.T. No. 13 or by a State with the approval of the Office of Defense Transportation, at or near such point and, if there be no such office at or near such point, by making appropriate inquiry of other carriers at their offices or terminals, or both, located at such point. Nor will due diligence be deemed to have been used unless, consistent with prior commitments involving the use of the truck en route, the carrier and his said representative or representatives shall have accepted for shipment and transported all freight to the load capacity of the truck found to have been available by such inquiry, for transportation to the point of destination of the motor truck or to any point intermediate to or beyond such destination point; nor unless, when a truck has been discharged of all lading at any point on a trip and upon such inquiry no freight is found available for transportation on said truck pursuant to the provisions of said subparagraph (1), the carrier shall have endeavored in good faith to lease or rent such truck, consistent with prior commitments involving the use of the truck en route, to another person for transportation of property.

(3) Nothing in this subpart contained shall be construed to require the loading of a motor truck to such an extent that the gross weight of the truck will exceed the actual safe capacity of any bridge or other structure en route, as determined by State or local authorities, or will exceed the maximum gross weight limitations prescribed by the applicable State law, proclamation, or regulation, Federal statute, or Executive Order, whichever is currently controlling, but such truck shall be loaded as nearly to the extent required by this subpart as may be consistent with such applicable limitations.

(4) A motor truck which has been so disabled en route that a capacity load cannot be transported or carried thereon may be operated in over-the-road service empty or partially laden to the nearest point where the common carrier operating said truck maintains, provides, or can obtain repair services.

(b) No common carrier shall:

(1) Operate in over-the-road service any motor truck, the gross weight of which exceeds by more than twenty (20) per cent its rated load-carrying ability, or

(2) Accept or receive any property for transportation over any circuitous route, except when no adequate common carrier service over a direct route is available, or except when the direct route is unsafe or unusable or is more destructive to tires or motor trucks.

(c) The provisions of this subpart shall not be so construed or applied as to require any common carrier to perform any transportation service, the performance of which by it is not authorized or sanctioned by law or to render any such service beyond its transportation capacity.

§ 501.7 EXEMPTIONS. (a) The provisions of paragraph (a) of § 501.6 of this subpart shall not apply to or include the following:

(1) Any motor truck while actually transporting exclusively high explosives, such as, and including, dynamite, blasting caps, detonation fusees, black powder, gun powder, and other like explosives, susceptible to detonation by a blasting cap, and the accessories necessary for the use of the foregoing;

(2) Any motor truck while operated under direction of the armed forces of the Federal or a State government;

(3) Any motor truck when engaged exclusively in the transportation of repair or service men and their supplies or equipment;

(4) Any motor truck operated exclusively in connection with the construction and maintenance of essential telegraph, telephone, organized radio communications, electric light and power, gas, and water supply utilities, and pipelines, railroads, street railways and public highways.

(5) Any motor truck operated in emergencies exclusively for the purpose of making deliveries of medicines or other supplies or equipment necessary for the protection or preservation of life, health or public safety;

(6) Any motor truck operated exclusively for the purpose of collecting and disposing of sewage or garbage or rendering other sanitation services, pursuant to governmental order, regulation or contract.

(b) The provisions of paragraph (a) and subparagraph (1) of paragraph (b) of § 501.6 shall not apply to the operation of any special equipment;

(c) The provisions of this subpart shall not apply to:

(1) Any motor truck, the primary carrying capacity of which is occupied by a mounted tank or tanks;

(2) Any motor truck controlled and operated by any person or persons principally engaged in farming, when used in the transportation of agricultural commodities and products thereof, from a farm or farms, or in the transportation of farm supplies to a farm or farms.

§ 501.8 SPECIAL OR GENERAL PERMITS. The provisions of this subpart shall be subject to any special or general permit issued by this Office to meet specific needs or exceptional circumstances, or to prevent undue hardship.

§ 501.9 SUBMISSION OF PLANS FOR JOINT ACTION. Whenever joint action between two or more common carriers is contemplated in order to accomplish any of the purposes of this subpart, such common carriers may formulate and submit to this Office for consideration, a plan or plans designed to accomplish such purposes by one or more of the methods described below:

(a) Alternate or stagger motor truck schedules between two or more points;

(b) Reciprocally exchange shipments of property between two or more points;

(c) Pool traffic, revenues, or both, between two or more points;

(d) Jointly load for transportation or operate a motor truck or trucks between two or more points;

(e) Divert traffic, operate joint terminals or joint pick-up or delivery vehicles;

(f) Establish arrangements with other carriers for the interchange of equipment;

(g) Appoint one of their own number or any other person or carrier to act as its or their individual, common or joint agent, to concentrate, receive, load, forward, carry, unload, distribute, and deliver property; receive, account for, and distribute gross or net revenues therefrom, or otherwise handle or conduct the carrier's business as common carriers of property upon just and reasonable terms and conditions; PROVIDED, That this subpart shall not be construed to authorize any common carrier or carriers to operate in any of the methods described in this section unless directed so to do by the Office of Defense Transportation or unless pursuant to a contract, agreement or combination approved by the Interstate Commerce Commission or a State regulatory body.

§ 501.10 INTERCHANGE OF TRAFFIC; HOLDING SHIPMENTS; BILLING AND RATES APPLICABLE. (a) Every common carrier whether by rail, motor, water, or otherwise, shall accept and receive from any common carrier as defined herein and transport all shipments of every kind. Such shipments shall be handled and transported in the same expeditious and efficient manner as shipments of a like nature received from any other source.

(b) No common carrier shall hold, carry over, store, or warehouse any shipment at any one station, except the final destination of the shipment, for longer than 36 hours, or at two or more such stations for an aggregate period of more than 48 hours, except where there is no other common carrier by rail, motor, water, or otherwise, capable of transporting the shipment consistent with the provisions of this subpart.

(c) Whenever a shipment is interchanged or diverted pursuant to the provisions of this § 501.10 the shipment shall be accepted and received by the carrier with which interchange is made or to which diverted at the connecting or diverting carrier's station or at the consignor's door, as the case may be, and such carrier shall load, transport, forward, or deliver, as the case may be, such shipment as the agent of the carrier which first accepted the shipment for transportation and under the pursuant to its rates, rules, regulations and practices, and shall honor and conform to its bill of lading or other billing, except as to any routing instructions therein inconsistent with the requirements of this § 501.10.

§ 501.11 RECORDS AND REPORTS. Every common carrier shall prepare and maintain such records, and make such reports, as this Office may hereafter require for the purpose of this subpart, and keep such records available and open for inspection at all reasonable times for examination by an accredited representative of this Office.

§ 501.12 CARRIER LIABILITY. Common carrier responsibility to the owner of any property being transported and among the carriers participating in such transportation shall be as provided by law for initial, terminating, intermediate, or delivering carriers.

§ 501.13 DIVISION OF REVENUES. Every common carrier by rail, motor, water, or otherwise, shall establish just, reasonable and equitable divisions of revenues derived from transportation performed pursuant to this subpart. Unless the division of revenues from any interchanges or diversion of shipments made pursuant to the provisions of this subpart shall have been agreed upon by the interested carriers, or shall have been prescribed by the Interstate Commerce Commission, or by the appropriate State regulatory body, such revenues shall be divided as this Office shall order.

§ 501.14 FILING OF TARIFFS. Every common carrier required by Law to file tariffs of rates, charges, rules or practices shall file forthwith with the Interstate Commerce Commission in respect of transportation in interstate or foreign commerce and with each appropriate State regulatory body in respect of transportation in interstate commerce, and publish in accordance with law, and continue in effect only for the duration of the present emergency unless otherwise ordered, tariffs, setting forth any changes in the rates, charges, rules, regulations, or practices of such common carrier which may be necessary to accord with this subpart, together with a copy of this subpart; and forthwith shall apply to said Commission and each such regulatory body for special permission for such tariffs or supplements to become effective on one-day's, or the absolute minimum period of, notice.

This subpart shall become effective and shall supercede Subpart B (General Order O.D.T. No. 3) on August 1, 1942.

Issued at Washington, D. C., this 13th day of July, 1942.

/s/ Joseph B. Eastman
Director of Defense Transportation

APPENDIX No. 1

TO GENERAL ORDERS No. 3 AND No. 17

APPENDIX No. 1

Under the terms of § 501.4 (f) of General Order No. 3, and of § 501.65 (g) of General Order No. 17 the rated load carrying ability of the tires mounted on the running wheels of a motor truck shall be determined by multiplying the number of tires mounted on the running wheels of such motor truck, of the size and description actually used, by the number of pounds appearing opposite the description of such tires in this Appendix.

EXAMPLE: A motor truck uses 10 running tires, size 9.00-20, ten ply. The rated load carrying ability of each such tire, in pounds per tire, as shown in this Appendix, is 3450. Multiply 10 (number of tires) by 3450 (rated load carrying ability of each tire). The result is 34,500 pounds, which is the "rated load carrying ability" of the motor truck as defined in the General Orders. [Ed. Note—The General Orders permit a gross vehicle weight 20 per cent in excess of the rated load carrying ability. In the example above the permissible gross weight would be 34,500 plus 6900 (twenty per cent of 34,500) or 41,400 lb.]

TRUCK TYPE TIRES USED IN MOTOR TRUCK OPERATIONS

Tire Size	No. of Plies	Rated Load Carrying Ability in lb. per Tire	Tire Size	No. of Plies	Rated Load Carrying Ability in lb. per Tire	Tire Size	No. of Plies	Rated Load Carrying Ability in lb. per Tire
5.00-16	4	730	7.50-18	8	2100	11.00-22(10.50-22)	12	4750
5.00-16	6	835	7.50-18/32x7	10	2500	11.00-24(10.50-24)	12	5000
5.50-16	4	840	7.50-20	8	2250	11.00-24(10.50-24)	14	5400
5.50-16	6	955	7.50-20/34x7	10	2700	12.00-18(11.25-18)	14	5125
6.00-16	4	990	7.50-24	8	2550	12.00-20(11.25-20)	14	5475
6.00-16	6	1130	7.50-24/38x7	10	3100	12.00-20/40x10	16	5875
6.00-17	6	1250	8.25-15	10	2275	12.00-22	14	5800
6.00-20	6	1400	8.25-15	12	2600	12.00-24(11.25-24)	14	6150
6.00-20/30x5	8	1700	8.25-16	6	1770	12.00-24/44x10	16	6600
6.00-24/34x5	8	1950	8.25-16	8	2000	13.00-20(12.75-20)	16	6750
6.25-16	4	1065	8.25-18	10	2550	13.00-24(12.75-24)	16	7575
6.25-16	6	1210	8.25-18	12	2925	14.00-20(13.50-24)	16	8200
6.50-16	4	1135	8.25-20	10	2750	14.00-20(13.50-20)	18	8700
6.50-16	6	1290	8.25-20	12	3150	14.00-24(13.50-20)	16	9150
6.50-17	6	1500	8.25-22	10	2950	14.00-24(13.50-24)	18	9700
6.50-18	6	1575	8.25-24	10	3125			
6.50-20	6	1700	8.25-24	12	3600	#10	6	1100
6.50-20/32x6	8	1950	9.00-15	10	2875	#11	6	1100
Light Truck 15"	6	1500	9.00-15	12	3200	#12	6	1200
" " 15"	8	1700	9.00-18	10	3225	#13	6	1300
7.00-15	6	1415	9.00-18	12	3600	#14	6	1400
7.00-15	8	1575	9.00-20	10	3450	#15	6	1500
7.00-16	6	1485	9.00-20/36x8	12	3850	#16	6	1600
7.00-16	8	1650	9.00-22	10	3675	#17	8	1700
7.00-17	6	1550	9.00-24	10	3925	#18	8	1800
7.00-17	8	1724	9.00-24/40x8	12	4375	#19	8	1900
7.00-18	8	1800	10.00-15(9.75-15)	12	3375	#20	10	2000
7.00-20	8	1950	10.00-18(9.75-18)	12	3775	#22	10	2200
7.00-20/32x6	10	2250	10.00-20(9.75-20)	12	4000	#28	10	2800
7.00-24/36x6	10	2575	10.00-20/38x9	14	4350	#34	10	3400
7.50-15	6	1595	10.00-22(9.75-22)	12	4275	#40	12	4000
7.50-15	8	1825	10.00-24(9.75-24)	12	4550	#42	12	4200
7.50-15	10	2225	10.00-24/42x9	14	4925	#44	12	4400
7.50-16	6	1660	11.00-18(10.50-18)	12	4200	#48	12	4800
7.50-16	8	1850	11.00-20(10.50-20)	12	4500	#50	12	5000
7.50-17	8	2000	11.00-20(10.50-20)	14	4850	#52	12	5200

PASSENGER TYPE TIRES USED IN MOTOR TRUCK OPERATIONS

440/450-21	4	800	600-20	4	1190	700-18	6	1525
440/450-21	6	900	600-20	6	1350	700-19	4	1405
475/500-19	4	895	625-16	4	985	700-19	6	1585
475/500-19	6	1005	625-16	6	1140	700-20	4	1500
475/500-20	4	925	625/650-16	4	1050	700-20	6	1700
475/500-20	6	1035	625/650-16	6	1215	750-15	4	1180
500-16	4	710	650-16	4	1050	750-15	6	1500
550-16	4	810	650-16	6	1215	750-16	4	1235
550-16	6	900	650-17	4	1175	750-16	6	1560
525/550-17	4	955	650-17	6	1320	750-17	4	1460
525/550-17	6	1075	650-18	4	1225	750-17	6	1645
525/550-18	4	1000	650-18	6	1375	750-18	4	1520
525/550-18	6	1125	650-19	4	1270	750-18	6	1710
525/550-19	4	1040	650-19	6	1430	750-19	4	1580
525/550-19	6	1170	650-20	4	1320	750-19	6	1775
600-16	4	915	650-20	6	1500	750-20	4	1700
600-16	6	1065	700-15	4	1095	750-20	6	1900
600-17	4	1025	700-15	6	1330	825-15	4	1260
600-17	6	1155	700-16	4	1145	825-15	6	1625
600-18	4	1070	700-16	6	1395	825-16	4	1320
600-18	6	1205	700-17	4	1300	825-16	6	1700
600-19	4	1115	700-17	6	1465	900-15	6	1800
600-19	6	1255	700-18	4	1355	900-16	6	1875

O D T GENERAL ORDER 17

MOTOR CARRIERS-(PRIVATE & CONTRACT)-OF PROPERTY (AMENDED)

TITLE 49—TRANSPORTATION AND RAILROADS

CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION

(General Order O.D.T. No. 17)

[Edited to include Amendment 1]

PART 501—CONSERVATION OF MOTOR EQUIPMENT

SUBPART K—MOTOR CARRIERS OF PROPERTY

Supersedes General Order O.D.T. No. 4, as amended, General Order O.D.T. No. 5, as amended, and that portion of General Order O.D.T. No. 6 which is applicable to private and contract carriers.

By virtue of the authority vested in me by Executive Order No. 8989, issued December 18, 1941, and by Executive Order No. 9156, issued May 2, 1942, and in order to assure maximum utilization of the facilities, services, and equipment of carriers by motor vehicle for the preferential transportation of materials of war and to prevent shortages in motor vehicle equipment necessary for such transportation, as contemplated by Section 6 (8) of the Interstate Commerce Act; to conserve and providently utilize vital equipment, material, and supplies, including rubber; and to provide for the prompt and continuous movement of necessary traffic, the attainment of which purpose is essential to the successful prosecution of the war,

IT IS HEREBY ORDERED That:

Sec.

501.65 Definitions.
501.66 Elimination of waste.
501.67 Mileage reduction requirements.
501.68 Special deliveries, call backs, number of deliveries.
501.69 Loading and operating requirements.
501.70 Exemptions.
501.71 Special or general permits.
501.72 Submission of plans for joint action.
501.73 Records and reports.
501.74 Filing of rate publications.
501.75 Revocation and effective date.

AUTHORITY: §§ 501.65 to 501.75, inclusive, issued under E.O. 8989, 6 F.R. 6725, and E.O. 9156, 7 F.R. 3349.

§ 501.65 DEFINITIONS. As used herein:

(a) The term "person" means any individual, firm, copartnership, corporation, municipal corporation, association, including a farm cooperative association as defined in the Agricultural Marketing Act, approved June 15, 1929, as amended, or other type of legal entity, or any trustee, receiver, assignee, or personal representative thereof.

(b) The term "property" means anything, except passengers, capable of being transported by motor truck.

(c) The terms "motor carrier" and "carrier" mean any person other than a person which holds itself out to the general public to engage in the transportaton of property for compensation, which engages in the transportation of property by motor truck, and includes contract carriers by motor truck and private carriers by motor truck.

(d) The terms "motor truck" and "truck" mean either (1) a straight truck, (2) a combination truck-tractor and semi-trailer, (3) a full trailer, (4) or any combination thereof, (5) or any other rubber-tired vehicle propelled or drawn by mechanical power or animals when used in the transportation of property, other than a motor vehicle engaged primarily in the transportation of passengers.

(e) The term "operating unit" means that portion of the motor truck operations conducted by any motor carrier from any given terminal, base of operation, or municipality. The total operating units of any motor carrier shall include all operations conducted by such motor carrier.

(f) The term "gross weight" means the aggregate weight of a motor truck and its lading.

(g) The term "rated load carrying ability" as applied to a truck means the weight which the tires mounted on the load bearing wheels of such trucks are capable of carrying as determined in the manner set forth in Appendix No. 1 attached hereto.

(h) The terms "capacity load" or "loaded to capacity" as applied to a truck mean either (1) the quantity of property, by weight, which may be carried in said truck, determined by deducting the weight of said truck from its rated load carrying ability, or (2) the maximum quantity of property, by volume, which may be stowed by efficient methods and safely transported in the load bearing space of the truck, whichever quantity is the lesser in weight.

(i) The term "delivery" means the operation of a motor truck by a motor carrier from any one point to any other point for the purpose of enabling such motor carrier to relinquish possession of property after transportation or to take possession of property for transportation, or both, and includes an offer or attempt to so relinquish or take possession of such property.

(j) The term "special delivery" means a delivery other than one made in the course of a normal delivery service.

(k) The term "call back" means any call made by a motor truck or a motor carrier at any given premises, other than for the purpose of making a delivery or for the purpose of repairing, servicing or maintaining such a truck.

(l) The term "over-the-road service" means all operations of a motor truck except: (1) those within an area which includes any municipality or urban community and a zone extending twenty-five (25) air miles from the boundaries thereof; (2) those within and between contiguous municipalities or urban communities; (3) those not more than twenty-five (25) miles in length.

(m) The term "local delivery service" means all operations of a motor truck except over-the-road service.

(n) The term "special equipment" means any low-bed motor truck, or any motor truck the primary carrying capacity of which is occupied by mounted machinery.

§ 501.66 ELIMINATION OF WASTE. Every motor carrier shall:

(a) Eliminate wasteful operation and duplication of parallel services, and curtail schedules and services to the extent necessary to carry out the purposes of this subpart;

(b) Conserve and properly maintain tires, motor trucks, and other transportation facilities necessary in conducting the business of such carrier;

(c) Lease or rent its motor trucks whenever practicable and to the extent necessary to carry out the purposes of this subpart.

§ 501.67 MILEAGE REDUCTION REQUIREMENTS. Each motor carrier shall reduce the total mileage of motor trucks operated in each operating unit during any calendar month, by not less than twenty-five (25) per cent of the total mileage of motor trucks operated by such carrier in the same operating unit during the correspondng calendar month of 1941, exclusive of the mileage eliminated as a result of the requirements of § 501.68. In the event any such carrier was not operating in the same operating unit during the corresponding calendar month of 1941, the mileage of motor trucks operated by such carrier in such operating unit during the month of May, 1942, shall be used as a basis for computing the reduction in monthly motor truck mileage required herein. Motor carriers not engaged in operations in any operating unit prior to June 1, 1942, shall not institute or continue such operations until the mileage which such carrier may operate in such operating unit shall have first been determined and authorized by the Office. If operations in any operating unit of any such carrier were increased between the month for which current reduction is being computed and the corresponding month of 1941, as a result of the acquisition of any motor truck operations of any other carrier, there shall be added to the total mileage of motor trucks operated in such operating unit by such acquiring carrier for the month which constitutes the basis for such reduction, the total mileage of motor trucks engaged in the acquired operations during the corresponding month of 1941, or if such operations were not being conducted during such month, then during the last month of such operations prior to the date of such acquisition. If any portion of the operations in any operating unit of such carrier were decreased between the month for which current reduction is being computed and the corresponding calendar month of 1941, as a result of the sale, lease or transfer of any motor truck operations, the total mileage of motor trucks operated in any operating unit by such carrier for the month which constitutes the basis for such reduction, shall be reduced by the total mileage of motor trucks operated in that portion of the operating unit so disposed of by such carrier.

§ 501.68 SPECIAL DELIVERIES, CALL BACKS, NUMBER OF DELIVERIES. Except as provided in § 501.70 of this subpart, no person shall cause to be made by motor truck and no motor carrier when operating a motor truck shall make:

(a) Any special delivery, except to hospitals.

(b) Any call back.

(c) More than one delivery from any one point of origin to any one point of destination during any calendar day except:

(1) When the property to be delivered exceeds the capacity load of the motor truck engaged in the delivery thereof, in which event each delivery, except the final delivery, shall be a capacity load delivery; or

(2) One additional delivery when the property to be delivered requires the use of a motor truck, other than the type used in making the first delivery, specially adapted for and used exclusively in the transportation of such property; or

(3) One additional delivery when made for the purpose of picking up empty containers if such additional delivery is made without increasing the mileage of any motor truck; or

(4) One additional delivery on the day next preceding a national holiday when such holiday falls on a Saturday, or on the Saturday next preceding a national holiday when such holiday falls on a Monday, provided such contract carrier does not make any delivery on such holiday.

§ 501.69 LOADING AND OPERATING REQUIREMENTS. (a) No motor carrier shall operate any motor truck in over-the-road service unless it is loaded to capacity, except as follows:

(1) A motor truck, while outbound from the origin point of a trip to the point most distant therefrom to which the truck is operated on such trip, and also while inbound, may be operated on a portion of the route or routes travelled while empty or partially laden, if, during the course of the outbound or inbound movement, the truck is laden with a capacity load while operated over a considerable portion or segment of the route or routes travelled in over-the-road service, and if the carrier uses due diligence in maintaining a capacity load upon the truck at all times while en route.

(2) On and after September 1, 1942, each motor carrier and its representatives, including the representative in immediate control and possession of the truck, shall endeavor in good faith prior to its departure from any point when empty to lease or rent such truck consistent with any prior commitments involved in the use of said truck en route, to another person for the transportation of property. In endeavoring to lease or rent such truck, each such carrier and its representative or representatives shall inquire at the register with the joint information office established at or near such point pursuant to General Order O.D.T. No. 13, or by a State with the approval of the Office of Defense Transportation, and if there be no such office at or near such point, shall make appropriate inquiries of other carriers at their offices or terminals, or both, located at such point.

(3) Nothing in this subpart contained shall be construed to require the loading of a motor truck to such an extent that the gross weight of the truck will exceed the actual safe capacity of any bridge or other structure en route, as determined by State or local authorities, or will exceed the maximum gross weight limitations prescribed by the applicable State law, proclamation, or regulation, Federal statute, or Executive Order, whichever is currently controlling, but such truck shall be loaded as nearly to the extent required by this subpart as may be consistent with such applicable limitations.

(4) A motor truck which has been so disabled en route that a capacity load cannot be transported or carried thereon may be operated in over-the-road service empty or partially laden to the nearest point where the carrier operating said truck maintains, provides, or can obtain repair services.

(b) No motor carrier shall operate in over-the-road service, any motor truck, the gross weight of which exceeds by more than twenty (20) per cent its rated load-carrying ability.

(c) The provisions of this subpart shall not be so construed or applied as to require any motor carrier

ODT GENERAL ORDER 6

LOCAL CARRIERS (FOR HIRE ONLY)

to perform any transportation service, the performance of which by it is not authorized or sanctioned by law or to render any such service beyond its transportation capacity.

§ 501.70 EXEMPTIONS. (a) The provisions of § 501.67, paragraphs (a) and (c) of § 501.68, and paragraph (a) of § 501.69 of this subpart shall not apply to or include the following:

(1) Any motor truck while actually transporting exclusively high explosives, such as, and including, dynamite, blasting caps, detonation fuses, black powder, gun powder, and other like explosives, susceptible to detonation by blasting cap and the accessories necessary for the use of the foregoing;

(2) Any motor truck when engaged exclusively in the transportation of repair or service men and their supplies or equipment;

(3) Any motor truck operated exclusively for the purpose of collecting and disposing of sewage or garbage or rendering other sanitation services, pursuant to Government order, regulation, or contract;

(4) Any motor truck operated exclusively in connection with the construction and maintenance of essential elegraph, telephone, organized radio communications electric light and power, gas and water supply utilities, and pipe lines, railroads, street railways, and public highways.

(5) Any motor truck while operated under direction of the armed forces of the Federal or a State government;

(6) Any motor truck operated in emergencies exclusively for the purpose of making deliveries of medicines or other supplies or equipment necessary for the protection or preservation of life, health, or for public safety;

(7) Any motor truck operated exclusively for the purpose of making deliveries of telegraph, radio, and cable communications or the United States mail.

(b) The provisions of § 501.67, paragraphs (a) and (c) of § 501.68, and paragraphs (a) and (b) of § 501.69 of this subpart shall not apply to or include the operation of any special equipment.

(c) The provisions of this subpart shall not apply to or include the following:

(1) Any motor truck, the primary carrying capacity of which is occupied by a mounted tank or tanks;

(2) Any motor truck controlled and operated by any person or persons principally engaged in farming, when used in the transportation of agricultural commodities and products thereof, from a farm or farms, or in the transportation of farm supplies to a farm or farms.

(3) Any motor truck owned, controlled, or operated by the armed forces of any State or of the United States.

(4) Any motor truck engaged in the transportation of property wholly within the boundaries of any industrial or manufacturing plant, or between units of such plant separated only by a public highway, when such transportation is an integral part of the business of such industrial or manufacturing plant.

§ 501.71 SPECIAL OR GENERAL PERMITS. The provisions of this subpart shall be subject to any special or general permit issued by this Office to meet specific needs or exceptional circumstances, or to prevent undue public hardships.

§ 501.72 SUBMISSION OF PLANS FOR JOINT ACTION. (a) All joint and collective action taken by motor carriers with respect to local delivery service in compliance with this subpart shall be in conformity with the terms and provisions of the joint statement issued by the Office of Defense Transportation and the Department of Justice dated March 12, 1942. In accordance with such statement, proposed plans for pooled or cooperative deliveries, for curtailing services, or for entering into other arrangements involving joint action may, if desired, be submitted to this Office for consideration and approval. In order that this Office may be informed concerning plans which have been or are hereafter placed in operation without such prior submission for consideration and approval, a copy of each such plan shall be filed with this Office.

(b) Whenever joint action between two or more motor carriers is contemplated with respect to over-the-road service in order to accomplish any of the purposes of this subpart, such carriers may formulate and submit to this Office for consideration a plan or plans designed to accomplish such purposes. No action shall be taken in furtherance of such plan or plans except in compliance with a specific order or orders issued by this Office.

§ 501.73 RECORDS AND REPORTS. Every motor carrier shall prepare and maintain records showing for

(TURN TO PAGE 69, PLEASE)

CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION

(General Order O.D.T. No. 6)

Part 501—Conservation of Motor Equipment

LOCAL DELIVERY OPERATIONS OF COMMON CARRIERS OF PROPERTY NOT ENGAGED IN OVER-THE-ROAD SERVICE

(Note: General Order O.D.T. No. 17 supplants the provisions of Order No. 6 in so far as they were applicable to private and contract carriers. The following text of Order No. 6 is edited to include Amendments 1 and 2.)

By virtue of the authority vested in me by Executive Order No. 8989 dated December 18, 1941, and in order to conserve and providently utilize local delivery transportation facilities and equipment, including rubber tires, for service in the several cities and other communities in the United States; to provide for the continuance of the distribution and delivery of necessary traffic in such cities and communities; and to conserve vital equipment, materials and supplies, including rubber, the attainment of which purposes is essential to the successful prosecution of the war, it is hereby ordered, That:

501.31 Definitions.
501.32 Special deliveries; call backs; number of deliveries.
501.33 Reduction of mileage.
501.34 Proposed plans for joint action.
501.35 Records and reports.
501.36 Exemptions.

Authority: Sections 501.31 to 501.36, inclusive, issued under E. O. 8989, 6 F. R. 6725.

§ 501.31 DEFINITIONS. As used herein:

(a) The term "vehicle" means any rubber-tired vehicle propelled or drawn by mechanical power or by horses.

(b) The term "local carrier" includes every person engaged in the transportation of property by vehicle for compensation, or in the furtherance of or incidental to any commercial enterprise (1) wholly within any municipality or urban community, or (2) wholly within a zone extending twenty-five (25) air miles from the boundaries of any municipality or urban community, or (3) between contiguous municipalities or urban communities, or (4) in making hauls not exceeding twenty-five (25) miles in length, or (5) when the property transported is delivered directly to the ultimate consumer thereof, in a vehicle which is operated from and returned to the point of origin on the same calendar day and is not used in carrying any other property, or (6) when the property is transported solely for the purpose of sale to retail dealers in a vehicle operated by the seller or an employee thereof, which vehicle leaves from and returns to the point of origin on the same calendar day.

(c) The term "person" means any individual, firm, copartnership, corporation, company, association, including any trustee, receiver, assignee, or personal representative thereof, and any agency of the United States or of any State not hereinafter exempted.

(d) The term "special delivery" means a delivery by vehicle made at the special instance or request of a particular person other than as a part of a regular scheduled delivery service.

(e) The term "call backs" means every call by a vehicle of a local carrier at the premises of any one person subsequent to the first call on any given day, and includes calls made for the sole purpose of picking up property for return to consignor, or for making collections.

§ 501.32 SPECIAL DELIVERIES, CALL BACKS, NUMBER OF DELIVERIES. Effective June 1, 1942, no person shall cause to be made by vehicle and no local carrier shall make:

(a) Any special deliveries except to hospitals and the armed forces of the United States, and except deliveries of medicines and other necessary supplies for the protection in emergencies of the public health, life, and safety.

(b) Any call-backs;

(c) More than one delivery between any one point of origin and any one point of destination, in any one calendar day, except:

(1) Special deliveries authorized by paragraph (a) of this section: PROVIDED, HOWEVER, That when one day's shipment or shipments to any one person exceed the capacity of a single vehicle, deliveries of such shipment or shipments shall be considered as one delivery;

(2) One delivery (in addition to the delivery authorized by the provisions of paragraph (c) of this § 501.32) of any commodity, the transportation of which requires the use of special equipment, in a vehicle specially constructed and adapted for and used exclusively in the transportation and delivery of such commodity.

§ 501.33 REDUCTION OF MILEAGE. Effective June 1, 1942, each local carrier shall reduce the total monthly vehicle mileage of rubber-tired vehicles in a minimum amount equal to 25% of the total mileage of vehicles in operation during the same calendar month of the year 1941 exclusive of the mileage eliminated as a result of the requirements of Section 501.32 of this Order. In the event any local carrier was not engaged in operation during the corresponding calendar month in 1941, the mileage of vehicles operated by such local carrier during the month of May, 1942, shall be used as a basis for computing the reduction in monthly vehicle mileage as herein required.

§ 501.34 PROPOSED PLANS FOR JOINT ACTION. All joint and collective action taken by local carriers in compliance with this Order shall be in conformity with the terms and provisions of the joint statement issued by the Office of Defense Transportation and the Department of Justice dated March 12, 1942. In accordance with such statement, proposed plans for pooled or cooperative deliveries, for curtailing services, or for entering into other arrangements involving joint action by local carriers may, if desired, be submitted to this Office for consideration and approval. In order that this Office may be informed concerning plans which have been or are hereafter placed in operation without such prior submission for consideration and approval, a copy of each such plan shall be filed with this Office.

§ 501.35 RECORDS AND REPORTS. Every local carrier shall prepare and maintain records as to mileage performed and steps taken to comply with the requirements of Sections 501.32 and 501.33 hereof, and shall prepare and maintain such other records and make such reports as this Office may hereafter require. All such records shall be kept available and open for inspection to representatives of this Office at all reasonable times.

§ 501.36 EXEMPTIONS. The provisions of this Order shall not apply:

(a) To vehicles operated exclusively in connection with the construction and maintenance of essential telegraph, telephone, organized radio communications, electric light and power, gas, water supply, sewage disposal, garbage disposal, and sanitation services;

(b) To vehicles owned, controlled, or operated by the armed forces of any State and of the United States;

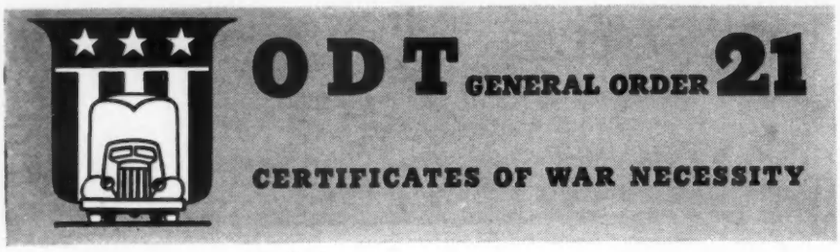
(c) To a vehicle controlled and operated by any person or persons principally engaged in farming when used in the transportation of agricultural commodities and products thereof from a farm or farms, or in the transportation of farm supplies to a farm or farms;

(d) To that portion of the business of any local carrier rendered in performing pick-up and delivery service for line-haul motor, rail, express, air and water carriers, or for freight forwarders;

(e) To any vehicle which is engaged in a movement that is authorized by special or general permit of this Office.

(f) To any vehicle used exclusively for the transportation of explosives, as defined in 50 U. S. Code 122, or dangerous articles, as defined in 18 U. S. Code 383.

(g) To vehicles operated exclusively for the purpose of providing pick-up and delivery of telegraphic, radio, and cable communications, and the United States Mail.



TITLE 49—TRANSPORTATION AND RAILROADS

CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION

(General Order ODT 21)

PART 501—CONSERVATION OF MOTOR EQUIPMENT

SUBPART M—CERTIFICATES OF WAR NECESSITY FOR AND CONTROL OF COMMERCIAL MOTOR VEHICLES

By virtue of the authority vested in me by Executive Order No. 8989, dated December 18, 1941, etc.

IT IS HEREBY ORDERED, That:

Sec.

501.90 Definitions.
501.91 Certificate of War Necessity required.
501.92 Application for certificate.
501.93 Issuance of Certificate of War Necessity.
501.94 Certificate of War Necessity not transferable.
501.95 Contents and conditions of certificate.
501.96 Motor fuel and commercial motor vehicle parts, tires, or tubes.
501.97 Inspection of tires.
501.98 Records and reports.
501.99 Enforcement officers authorized to report violations.
501.100 Suspension or revocation of certificate.
501.101 Control of vehicles.
501.102 Exemptions.
501.103 Communications.
501.104 Effective date.

§ 501.90 DEFINITIONS. As used in this subpart:

(a) The term "commercial motor vehicle" means (1) (i) a straight truck, (ii) a combination truck-tractor and semi-trailer, (iii) a full trailer, (iv) any combination thereof, or (v) any other rubber-tired vehicle, excluding a motorcycle, propelled or drawn by mechanical power and built (or rebuilt primarily for the purpose of transporting property, and (2) any bus, taxicab, jitney, or other rubber-tired vehicle, propelled or drawn by mechanical power, used in the transportation of persons upon the highways, or available for public rental, including ambulance and hearses, but not including a private passenger automobile.

(b) The term "person" means an individual, partnership, corporation, association, joint-stock company, business trust, or other organized group of persons, and includes the United States or any agency, territory, or possession thereof, a State or any agency or political subdivision thereof, or any trustee, receiver, assignee, or personal representative.

(c) The term "property" means anything, except persons, capable of being transported by motor truck.

(d) The term "fleet" means three or more commercial motor vehicles owned or operated by one person.

(e) The term "private passenger automobile" means any motor vehicle built primarily for the purpose of transporting persons and having a rated seating capacity of seven (7) or less; and includes station wagons and suburban carryalls, irrespective of seating capacity, which are not used in the transportation of persons or property for compensation.

§ 501.91 CERTIFICATE OF WAR NECESSITY REQUIRED. On and after November 15, 1942, no person shall operate any commercial motor vehicle within the continental limits of the United States unless there is in force with respect to such commercial motor vehicle a Certificate of War Necessity issued by the Office of Defense Transportation governing such operation.

§ 501.92 APPLICATION FOR CERTIFICATE. Application for a Certificate of War Necessity shall be made in writing to the field office of the Office of Defense Transportation for the areas in which the home office or principal place of business of applicant is located, unless the applicant is directed to make application to some other office of the Office of Defense Transportation. Any such application shall be made on forms provided by the Office of Defense Transportation, and shall contain such information as the Office of Defense Transportation shall require.

§ 501.93 ISSUANCE OF CERTIFICATE OF WAR NECESSITY. (a) A Certificate of War Necessity will be issued by the Office of Defense Transportation to any qualified applicant therefor, certifying, with respect to the operations covered by the application, limitations of mileage or of motor fuel or requirements as to loads, or any one or more of such limitations or requirements, in order that such operations (1) shall be confined to those which are necessary to the war effort or to the maintenance of essential civilian economy, (2) shall be so conducted as to assure maximum utilization in such service of the commercial motor vehicle or vehicles of the applicant, and (3) shall conserve and providently utilize rubber or rubber substitutes and other critical materials used in the manufacture, maintenance, and operation of such vehicles.

(b) In all original and subsequent certifications the Office of Defense Transportation will be guided by the provisions of its outstanding orders or public statements or policy relating to the operations under consideration, and all such outstanding orders and statements of policy will remain in full force and effect unless and until they are formally amended, superseded, or revoked.

(c) Such certificate, when issued in respect of a single commercial motor vehicle, shall at all times be carried on such vehicle. When such certificate is issued in respect of a fleet of commercial motor vehicles, a fleet unit certificate shall at all times be carried on each commercial motor vehicle covered by such fleet certificate.

§ 501.94 CERTIFICATE OF WAR NECESSITY NOT TRANSFERABLE. No Certificate of War Necessity shall be transferable. In the event of the sale or other transfer of a commercial motor vehicle, or a substantial change in the character of its use or the condition under which it is used, the purchaser or transferee or owner thereof shall forthwith make application to the Office of Defense Transportation for a new certificate, upon the issuance of which the previously issued Certificate of War Necessity appertaining to such vehicle shall be surrendered for cancellation.

§ 501.95 CONTENTS AND CONDITIONS OF CERTIFICATE. Any Certificate of War Necessity issued under this subpart shall specify:

(a) The name and address of the person to whom issued;

(b) The vehicle or vehicles covered thereby;

(c) The purposes for which and the conditions under which such vehicle or vehicles may be operated;

(d) Such other terms or conditions as the Office of Defense Transportation may from time to time specify.

§ 501.96 MOTOR FUEL AND COMMERCIAL MOTOR VEHICLE PARTS, TIRES, OR TUBES. On and after Novemeber 15, 1942, no person shall:

(a) Transfer any motor fuel to, or transfer, mount, or install any part, tire or tube, in or upon any commercial motor vehicle, unless the operator thereof at the time of such transfer or installation, shall present to such person for inspection a valid Certificate of War Necessity pertaining to such vehicle, issued by the Office of Defense Transportation;

(b) Transfer or deliver any motor fuel for the use of, or transfer, mount, install, or deliver any part, tire or tube for the use of any commercial motor vehicle, unless the operator of such commercial motor vehicle shall at the time thereof sign a written receipt, in duplicate, for such motor fuel, part, tire or tube, and endorse on each copy of such receipt the number of the Certificate of War Necessity pertaining to the commercial motor vehicle or vehicles in or upon which such motor fuel, part, tire or tube is to be used. In the event such transfer, delivery, or installation is for the use of a fleet of commercial motor vehicles, the number of the Certificate of War Necessity pertaining to such fleet shall be endorsed on each such written receipt. The original receipt shall be retained by the person making the transfer, delivery, or installation, and the copy shall be retained by the person operating the commercial motor vehicle. Such receipts shall be available for examination and inspection at all reasonable times by accredited representatives of the Office of Defense Transportation.

(c) The provisions of this section shall not apply to transfers or installations made pursuant to a coupon, certificate, or other instrument, authorized or issued by a rationing agency of the United States, or to the sale, transfer, or delivery of motor fuel, parts, tires, or tubes, to any person for the purpose of resale.

§ 501.97 INSPECTION OF TIRES. On and after November 15, 1942, no person shall operate any commercial motor vehicle, unless within the sixty (60) days immediately preceding such operation, or, in the event such motor vehicle has been operated more than five thousand (5000) miles during such period, unless within the five thousand (5000) miles last operated by such vehicle, all tires mounted upon the wheels thereof or carried for use on such vehicle have been inspected by an inspection agency designated by the Office of Price Administration, and unless such inspection agency has certified that such person has made all reasonable and necessary adjustments, repairs, retreading, recapping, replacement of parts or tires, and realignment of wheels, found by such inspection agency to be necessary to conserve and providently utilize such tires, unless such operator is unable, under then existing rationing regulations to make such repairs, retreading, recapping, or replacement of parts or tires.

§ 501.98 RECORDS AND REPORTS. Any person operating a commercial motor vehicle in respect of which a Certificate of War Necessity has been issued, shall prepare and permanently maintain in the manner and form prescribed by the Office of Defense Transportation records of all operations conducted by such vehicle. A weekly record of such operations shall be maintained in accordance with the form provided on the reverse side of such Certificate of War Necessity, and shall be carried at all times in such vehicle. Such person shall keep such other records and make such reports as may be required and in the manner and form prescribed by the Office of Defense Transportation. All such records shall be available for examination and inspection at all reasonable times by accredited representatives of the Office of Defense Transportation.

§ 501.99 ENFORCEMENT OFFICERS AUTHORIZED TO REPORT VIOLATIONS. Any enforcement officer of any State or political subdivision thereof, who, on or after November 15, 1942, finds any commercial motor vehicle being operated which at such times does not have in such vehicle, available for inspection and examination a valid Certificate of War Necessity issued under this subpart, or which is in any other way being operated in violation of any order of the Office of Defense Transportation, or any term or condition of a Certificate of War Necessity governing its operation, is authorized to make a report thereof to the Office of Defense Transportation, stating the name of the person operating such vehicle, the owner or lessee thereof, and such other information as the Office of Defense Transportation may specify. Such reports may be made on forms prescribed by the Office of Defense Transportation.

§ 501.100 SUSPENSION OR REVOCATION OF CERTIFICATE. Any Certificate of War Necessity issued under this subpart shall be effective from the date specified therein and shall remain in effect according to its terms until amended, modified, recalled, suspended, cancelled, or revoked in whole or in part by the Director of Defense Transportation for good cause.

§ 501.101 CONTROL OF VEHICLES. (a) Whenever the Office of Defense Transportation shall deem it to be advisable, any person having possession or control of any commercial motor vehicle shall, notwithstanding any contract, lease, or other commitment, express or implied, with respect to the use or operation of such commercial motor vehicle, cause such vehicle (1) to be operated in such manner, for such purpose, and between such points, as the Office of Defense Transportation shall from time to time direct, and (2) to be leased or rented by any such person to such person or persons, except by a person engaged in transporting property in a commercial motor vehicle for compensation to a person not engaged in such transportation, as the Office of Defense Transportation shall from time to time direct. Unless the interested parties agree upon the amount of compensation payable for the use of any such vehicle, so directed to be leased or rented, the amount of such compensation shall be such amount as may be determined by the Office of Defense Transportation to be just and equitable, subject to any applicable maximum price established by any competent governmental authority.

(b) The provisions of this section shall not be so construed or applied as to require any person operating a commercial motor vehicle to perform any transportation service, the performance of which by it is not authorized or sanctioned by law.

§ 501.102 EXEMPTIONS. The provisions of this subpart shall not apply to or include the following:

(a) A commercial motor vehicle operated by or under the direction of the military or naval forces of

the United States or State military forces organized pursuant to Section 61 of the National Defense Act, as amended;

(b) A commercial motor vehicle operated by a dealer exclusively for the purpose of selling such vehicle;

(c) A motor vehicle having a capacity of not to exceed seven (7) passengers operated by a person between his or her home and place of work and used in transporting other persons between their homes and their places of work, if such motor vehicle is not used for any other purpose for compensation.

§ 501.103 COMMUNICATIONS. Communications concerning this subpart should be addressed to the Division of Motor Transport, Office of Defense Transportation, Washington, D. C., or to the field office of the Office of Defense Transportation designated for the area in which the home office or principal place of business of the correspondent is located. Such communications should refer to General Order ODT 21.

§ 501.104 EFFECTIVE DATE. Except as otherwise provided herein, this subpart shall become effective November 15, 1942.

Issued at Washington, D. C., this 8th day of September, 1942.

/s/ JOSEPH B. EASTMAN,
Director of Defense Transportation.

ODT ORDER NO. 17

(Continued from page 67)

each calendar month, the mileage of each motor truck operated by such carrier, and shall prepare and maintain such logs and other records and make such reports as this Office may hereafter require for the purpose of this subpart. All such records shall be kept available and open for inspection at all reasonable times for examination by any accredited representative of this Office.

§ 501.74 FILING OF RATE PUBLICATIONS. Every motor carrier required by law to file schedules or contracts of rates, charges, rules, or practices shall file fothwith with the Interstate Commerce Commission in respect of transportation in intrastate or foreign commerce and with each appropriate State regulatory body in respect of transportation in interstate commerce, and publish in accordance with law, and continue in effect only for the duration of the present emergency unless otherwise, ordered, schedules, contracts, or appropriate supplements to filed schedules or contracts, setting forth any changes in the rates, charges, rules, regulations, or practices of such carrier which may be necessary to accord with this subpart, together with a copy of this subpart; and forthwith shall apply to said Commission and each such regulatory body for special permission for such schedules, contracts, or supplements to become effective on one-day's, or the absolute minimum period of, notice.

§ 501.75 REVOCATION AND EFFECTIVE DATE. (a) That Title 49, Chapter II, Part 501, Subpart C, General Order O.D.T. No. 4 as amended, §§ 501.16 to 501.23, inclusive, and Title 49, Chapter II, Part 501, Subpart D, General Order O.D.T. No. 5, as amended: §§ 501.24 to 501.30, inclusive, be and the same are hereby revoked, effective as of the date this subpart becomes effective.

(b) That the application of the provisions of General Order O.D.T. No. 6, as amended, (Title 49, Chapter II, Part 501, Subpart E, §§ 501.31 to 501.36, inclusive), General Permit O.D.T. No. 6-1 (Title 49, Chapter II, Part 521, Subpart E, § 521.2000), and General Permit O.D.T. No. 6-2 (Title 49, Chapter II, Part 521, Subpart E, § 521.2001) to the motor truck operations of any motor carrier be and the same are hereby revoked, effective as of the date this subpart becomes effective.

(c) The provisions of:

(1) Subparagraph (2) of paragraph (a) of § 501.69 of this subpart shall become effective September 1, 1942, and shall remain in full force and effect until further order of this Office.

(2) This subpart, except as specified in subparagraph (1) of this paragraph (c), shall become effective August 1, 1942.

Issued at Washington, D. C. this 23rd day of July, 1942.

/s/ Joseph B. Eastman
Director of Defense Transportation.

ODT GENERAL ORDER 13

JOINT INFORMATION OFFICES (Amended)

TITLE 49—TRANSPORTATION AND RAILROADS

CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION

(General Order O.D.T. No. 13 [including Amendment No. 1 issued July 23—Ed.])

PART 501—CONSERVATION OF MOTOR EQUIPMENT

SUBPART I—ESTABLISHMENT OF JOINT INFORMATION OFFICES

By virtue of the authority vested in me by Executive Order No. 8989, dated December 18, 1941, and by Executive Order No. 9156, dated May 2, 1942, and in order to enable carriers by motor truck to comply with the requirements of General Order O.D.T. No. 3, Revised, and General Order O.D.T. No. 17:

IT IS HEREBY ORDERED, That:

Sec.
501.56 Definitions.
501.57 Establishment of joint information offices.

§ 501.56 DEFINITIONS. As used in this subpart:

The term "carrier" means any common carrier as defined in § 501.4 (c) of General Order O.D.T. No. 3, Revised, and any motor carrier as defined in § 501.65 (c) of General Order O.D.T. No. 17.

§ 501.57 ESTABLISHMENT OF JOINT INFORMATION OFFICES. On and after the effective date specified in this subpart any two or more carriers or any carrier association or group of associations may establish joint information offices, at such points and places throughout the United States as may be authorized by the Office of Defense Transportation, under the following conditions:

(a) Each joint information office shall be governed by a committee or board, selected by the carriers or members of the carrier association or associations establishing it. In selecting the governing committee or board representation shall be allowed to the various types of carriers establishing or utilizing the services of the office.

(b) The Office of Defense Transportation shall be advised forthwith as to the name and address of each person selected as a member of the governing committee or board or as manager or employee of a joint information office and shall be furnished accurate information with respect to the character, experience and past and present occupation and employment of such persons and, on the basis thereof, shall have the right to disapprove such selections. Each person so selected may be removed at any time from such office or position by direction of the Office of Defense Transportation. No person employed as a manager or as an employee of a joint information office shall during his employment, be employed by a carrier except with the approval of the Office of Defense Transportation, nor shall he be a member of the governing committee or board.

(c) The function of the joint information office shall be to assist common carriers in complying with the requirements of General Order O.D.T. No. 3, Revised, and motor carriers in complying with the requirements of General Order O.D.T. No. 17, by obtaining and receiving from common carriers information as to the availability of traffic originated or controlled by or in the possession of or on order to common carriers, and from all carriers information as to the availability of equipment, and by furnishing such information in respect of available traffic to any and all common carriers who apply therefor, and in respect of available equipment to any and all carriers who apply therefor; such information shall be furnished to such carriers, in the order of the receipt of their respective applications and without discrimination, preference or partiality. The authority of such joint information office shall include all things reasonably necessary to carry out the functions above described, but shall not include the right to fix the compensation for the interchange of traffic or for the transportation of traffic interchanged, or the rental price of vehicles leased, or to designate any particular carriers to receive any given traffic or to lease, rent, or exchange any given vehicle.

(d) A clearance statement shall be issued by each joint information office to each carrier with respect to a designated motor truck when such carrier representing that the movement of such motor truck to the point of destination specified is not prohibited by any order of the Office of Defense Transportation, has requested from such office information of the type designated in paragraph (c) of this section in order to permit compliance with any such order, and when:

(1) The designated motor truck is moving with less than capacity load and there is no informtion on file with respect to property available for transportation to, intermediate to, or beyond the point of destination of such motor truck; or

(2) When the carrier has accepted for transportation and loaded in such motor truck all property available for transportation to, intermediate to, or beyond the point of destination of such motor truck; or

(3) The designated motor truck is moving empty and there is no information on file with respect to other carriers desiring to utilize such carrier's motor truck to or toward the destination of such truck.

Such clearance statement shall describe the motor truck or trucks involved and shall state the point of destination and the date and hour of the issuance of the statement. A copy of each such clearance statement shall be retained in the files of the joint information office and the original shall be given to and retained by the carrier. Such statements shall not be conclusive evidence of the facts concerning the availability of such traffic or the possibility of lease of such motor truck or trucks by other carriers.

(e) Except as may be otherwise provided by agreement between the interested carriers or prescribed by the Insterstate Commerce Commission or by the appropriate State regulatory body, the divisions of revenues between carriers for traffic interchanged between them and the compensation to be paid and received for rental of equipment shall be as determined by the Office of Defense Transportation upon appropriate application.

(f) Disputes between carriers and the manager of a joint information office or the governing committee or board may be appealed to the Director of Motor Transport, Office of Defense Transportation, and his decision on any such appeal shall supersede the decision of the manager or the governing committee or board. In cases of disputes, the manager of the joint information office shall notify all parties thereto of their right to have the matter acted upon by such an appeal to the Director of Motor Transport.

(g) The manager of the joint information office shall maintain a record of all information filed with such office and shall keep such further records and make such reports as may be required by the Office of Defense Transportation. If, after registration with any joint information office, any equipment or traffic becomes unavailable for the purposes for which it was so registered, the carrier who made such registration, forthwith shall notify the manager of such information office of such fact, and thereupon the registration of such equipment or traffic shall be cancelled. All records, files, and correspondence shall be available for examination by accredited representatives of the Office of Defense Transportation at all times.

(h) No membership fee shall be charged any carrier desiring to utilize the services of a joint information office as a condition precedent to the use of such services, but the cost of establishing and maintaining any such office may be apportioned, on an equitable basis, among the carriers participating in its establishment or utilizing its services, which basis of apportionment may be changed by direction of the Office of Defense Transportation. Non-discriminatory charges, in such amount as may be fixed by the governing committee or board, may be made to carriers for services rendered to them by a joint information office. The amount of such charges may be changed by direction of the Office of Defense Transportation. A statement of such charges currently in effect shall be conspicuously posted in each office at all times.

(i) No joint information office shall be established, or if heretofore established, shall be continued to be maintained, except in compliance with this order.

This subpart shall become effective July 2, 1942, and shall remain in full force and effect until futher order of this office.

Issued at Washington, D. C., this 2nd day of July, 1942.

/s/ Joseph B. Eastman,
Director of Defense Transportation.

ODT GENERAL PERMITS

TO ODT ORDERS 3, 6 AND 17

General Permit O.D.T. No. 3-3
TRANSPORTATION OF EXPOSED MOTION PICTURE FILM

§ 521.502 TRANSPORTATION OF EXPOSED MOTION PICTURE FILM. Any common carrier when operating a motor truck engaged exclusively in the transportation of exposed motion picture film, including film advertising matter and incidental theatrical supplies, or when operating a motor truck engaged exclusively in the transportation of exposed motion picture film, including film advertising matter and incidental theatrical supplies, and newspapers or magazines, is hereby relieved, in respect of any such motor truck so engaged in such transportation, from compliance with the provisions of subparagraphs (1) and (2) of paragraph (a) and subparagraph (2) of paragraph (b) of § 501.6 of General Order O.D.T. No. 3, revised.

Effective August 1, 1942, until further order. Issued July 31, 1942.

General Permit O.D.T. No. 3-4
TRANSPORTATION OF FARM PRODUCTS AND SUPPLIES

§ 521.503 TRANSPORTATION OF FARM PRODUCTS AND SUPPLIES. Any common carrier when operating a motor truck engaged exclusively in the transportation of farm products from a farm or farms to a processing or packing plant, dehydrating, brining, freezing, or storage place, cannery, mill, warehouse, stockyard, wholesale or retail market, or to a rail or a water carrier, or when operating a motor truck engaged exclusively in the transportation of farm supplies to a farm or farms, is hereby relieved, in respect of any truck so engaged in such operations, from compliance with the provisions of subparagraph (2) of paragraph (a) of § 501.6 of General Order O.D.T. No. 3, revised, for a period of ninety-two (92) days commencing August 1, 1942, and ending October 31, 1942. Issued July 31, 1942.

General Permit O.D.T. No. 3 Revised -5
SMALL AND SPECIALLY DESIGNED TRUCKS

§ 521.504 SMALL AND SPECIALLY DESIGNED TRUCKS. Any common carrier operating a motor truck (a) which can be utilized only for the transportation of that type of property for which it is specially designed, and not for the transportation of property generally; or, (b) where the primary carrying capacity is occupied by built-in loading racks, trays, or crates designed for the loading of specific property; or, (c) where the rated load-carrying ability, as defined in the provisions of paragraph (f) of § 501.4 of General Order O.D.T. No. 3 Revised, as amended, does not exceed twelve thousand pounds, is hereby relieved, in respect of trucks so engaged, from compliance with the provisions of subparagraph (2) of paragraph (a) of § 501.6 of General Order O.D.T. No. 3 Revised, as amended.

Effective September 8, 1942, until further order. Issued September 8, 1942.

General Permit O.D.T. No. 6-1
DELIVERIES OF NEWSPAPERS

§ 521.2000 DELIVERIES OF NEWSPAPERS. (a) Local carriers engaged in the transportation and delivery of newspapers in any area, as defined in § 501.31 (b) of General Order O.D.T. No. 6, as amended, in which is located a metropolitan district having a population of 200,000 or more, as determined by pamphlet "PH-1" entitled "Population and Housing Units in the Metropolitan Districts of the United States, 1940," issued by the Bureau of Census, Department of Commerce of the United States, in lieu of compliance with the provisions of § 501.32 (c) of General Order O.D.T. No. 6, as amended, may elect to restrict the number of deliveries of newspapers in any one calendar day, dependent upon the population of the metropolitan district, as hereinafter specified:

In areas containing a metropolitan district having a population	Number of deliveries Morning newspapers	Afternoon newspapers
From 200,000 to 700,000	2	2
From 700,000 to 2,000,000	3	3
Over 2,000,000	4	4

(b) Any local carrier engaged in the transportation and delivery of newspapers, in lieu of compliance with the provisions of §§ 501.32 (c) and 501.33 of General Order O.D.T. No. 6, as amended, and if it shall not have elected to take advantage of paragraph (2) of this General Permit, may reduce its total monthly vehicle mileage of all vehicles operated by such carrier to 60% or less of the total mileage of all vehicles operated in performing such transportation and delivery during the corresponding calendar month of 1941, exclusive of the mileage eliminated by compliance with the provisions of paragraphs (a) and (b) of § 501.32 of General Order O.T.D. No. 6, as amended. In the event such local carrier was not engaged in making deliveries of newspapers during the corresponding month in 1941, the mileage of the vehicles operated by such local carrier for such purpose during the month of May, 1942, shall be used as a basis for computing the total monthly vehicle mileage of such local carrier referred to in this paragraph (b).

Effective June 1, 1942, until further order. Issued May 29, 1942.

General Permit O.D.T. No. 6-2
DELIVERIES OF SOLID FUELS

§ 521.2001. DELIVERIES OF SOLID FUELS. Local carriers engaged in the transportation and delivery of solid fuel are hereby exempted from the provisions of § 501.33 of General Order O.D.T. No. 6, as amended. On and after July 1, 1942, each such carrier shall so adjust its vehicle operations that it effects a reduction in its mileage per ton of solid fuel delivered in any calendar month in an amount equal to at least 25% of its average monthly mileage per ton for solid fuel delivered during the calendar year 1941. In the event such local carrier was not engaged in making deliveries of solid fuel during the corresponding month in 1941, the mileage per ton of solid fuel delivered by such local carrier during the month of May, 1942, shall be used as a basis for computing the mileage per ton reduction of such local carrier required hereby.

Effective June 1, 1942, until further order. Issued May 29, 1942.

General Permits O.D.T. 6-3, 4, 6 & 7

These General Permits gave temporary relief to vehicles engaged in "Deliveries of Liquids in Bulk." All are superseded by General Permit 6-8 below.

General Permit O.D.T. No. 6-5
ADDITIONAL DELIVERY PRIOR TO A NATIONAL HOLIDAY

§ 501.2004 ADDITIONAL DELIVERY PRIOR TO NATIONAL HOLIDAYS. On the day next preceding a national holiday, when such holiday falls on a Saturday, or on the Saturday next preceding a national holiday, when such holiday falls on a Monday, a local carrier may make two (2) deliveries or may make one (1) delivery and one (1) call back, in addition to any special deliveries authorized by General Order O.D.T. No. 6, as amended, provided such local carrier does not make any delivery, other than such authorized special deliveries, on such holiday.

Issued July 1, 1942.

General Permit O.D.T. No. 6-8
DELIVERIES OF LIQUIDS IN BULK

§ 521.2008 DELIVERIES OF LIQUIDS IN BULK. Any vehicle, the primary carrying capacity of which is occupied by a mounted tank or tanks designed to carry bulk liquids, when operated by a local carrier in the transportation and delivery of liquids in bulk, is hereby exempted from the provisions of General Order O.D.T. No. 6, as amended.

Effective until further order. Issued September 3, 1942.

General Permit O.D.T. No. 6-9
MILEAGE REDUCTION REQUIREMENTS; CERTIFICATE OF WAR NECESSITY

§ 521.2009 MILEAGE REDUCTION REQUIREMENTS; CERTIFICATE OF WAR NECESSITY. When a Certificate of War Necessity, as provided by General Order ODT 21, is issued to any local carrier which certifies the total maximum mileage to be operated by any commercial motor vehicle or vehicles, singly or collectively, during any stated period, such local carrier is hereby relieved, in respect of such vehicle or vehicles so operated, from compliance with the provisions of § 501.33 of General Order O.T.D. No. 6, as amended: Provided, That the operation of such vehicle or vehicles by such local carrier shall be governed by the terms and conditions specified in such Certificate of War Necessity.

Effective October 5, 1942, until further order. Issued October 5, 1942.

General Permit O.D.T. No. 17-1
TRANSPORTATION OF FARM PRODUCTS AND SUPPLIES

§ 521.2875 TRANSPORTATION OF FARM PRODUCTS AND SUPPLIES. Motor carriers when operating a motor truck engaged exclusively in the transportation of farm products from a farm or farms to a concentration or storage point, processing or packing plant, dehydrating, brining, freezing, or grading place, cannery, mill, warehouse, stockyard, wholesale or retail market, or to a rail or a water carrier, or when operating a motor truck engaged exclusively in the transportation of farm supplies to a farm or farms, are hereby relieved, in respect of trucks so engaged, from compliance with the provisions of § 501.67, paragraph (c) of § 501.68, and subparagraph (2) of paragraph (a) of § 501.69 for a period of ninety-two (92) days commencing August 1, 1942, and ending October 31, 1942.

Issued July 23, 1942.

General Permit O.D.T. No. 17-2
DELIVERIES OF SOLID FUELS

§ 521.2876 DELIVERIES OF SOLID FUELS. Any motor carrier when operating a motor truck engaged exclusively in the delivery of solid fuel, in lieu of including the mileage of such motor truck in the total mileage of motor trucks operated by such carrier in an operating unit during any calendar month subject to the mileage reduction prescribed by § 501.67 of General Order O.D.T. No. 17, may elect to adjust the operations of such motor truck so as to effect a reduction in the mileage per ton of solid fuel delivered in any calendar month in an amount equal to at least twenty-five (25) per cent of its average monthly mileage per ton of solid fuel delivered during the calendar year of 1941. In the event such carrier was not engaged in making deliveries of solid fuel during the corresponding month of 1941, the mileage per ton of solid fuel delivered by such carrier during the month of May, 1942, shall be used as a basis for computing the required mileage per ton reduction of any motor truck so operated.

Effective August 1, 1942, until further order. Issued July 29, 1942.

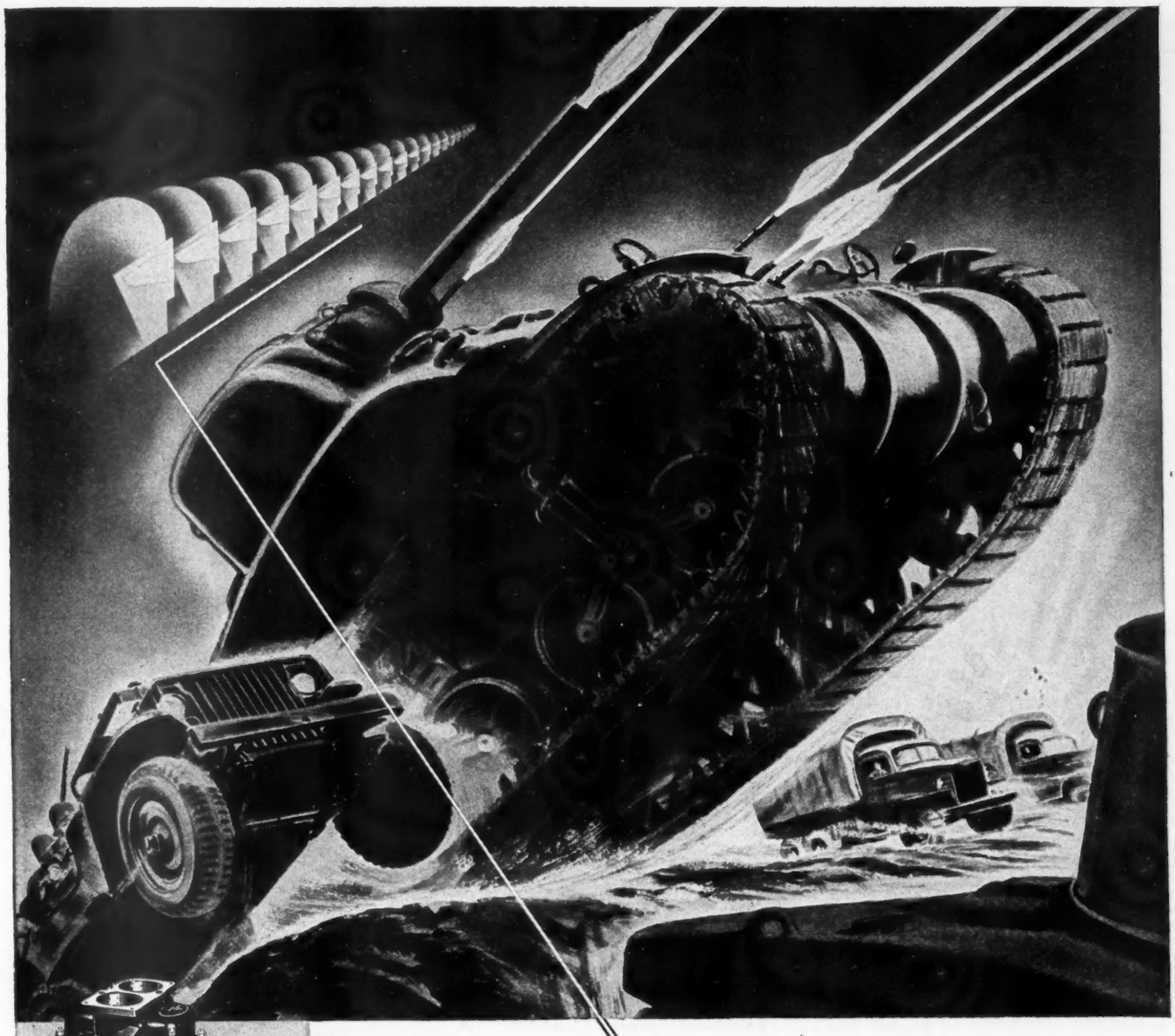
General Permit O.D.T. No. 17-3
DELIVERIES OF NEWSPAPERS

§ 521.2877 DELIVERIES OF NEWSPAPERS. (a) Any motor carrier when operating a motor truck engaged exclusively in the transportation and delivery of newspapers and while returning such truck to its terminal or base of operation is hereby relieved from compliance with the provisions of paragraph (a) of § 501.69 of General Order O.D.T. No. 17.

(b) Notwithstanding the provisions of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, any motor carrier when operating a motor truck may make one delivery of morning newspapers and one delivery of afternoon newspapers during any calendar day.

(c) Any motor carrier when operating a motor truck engaged in the transportation and delivery of newspapers in any area which is located in a metropolitan district having a population of 200,000 or more, as determined by pamphlet "PH-1" entitled "Population and Housing Units in the Metropolitan Districts of the

(TURN TO PAGE 72, PLEASE)



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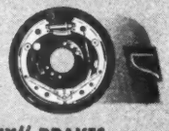

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ODT GENERAL PERMITS

TO ODT ORDERS 3, 6 AND 17

(CONTINUED FROM PAGE 70)

United States, 1940" issued by the Bureau of the Census, Department of Commerce of the United States, in lieu of compliance with the provisions of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, and paragraph (b) of this General Permit, may elect to make deliveries of newspapers in any one calendar day in numbers not exceeding those set forth in the following schedule:

In areas containing a metropolitan district having a population	Number of deliveries Morning Newspapers	Afternoon Newspapers
From 200,000 to 699,999	2	2
From 700,000 to 2,000,000	3	3
Over 2,000,000	4	4

(d) Any motor carrier when operating a motor truck or trucks engaged exclusively in the transportation and delivery of newspapers, if such carrier shall not have elected to comply with the provisions of paragraph (b) or (c) of this General Permit, in lieu of including the mileage of such truck or trucks in the total mileage of motor trucks operated by such carrier in any operating unit during any calendar month subject to the mileage reduction prescribed by § 501.67 of General Order O.D.T. No. 17, and in lieu of compliance with the provision of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, may elect to adjust the operations of such truck or trucks so as to effect a reduction in the mileage operated by such truck or trucks in any calendar month in an amount equal to at least 40 per cent of the total mileage operated by such truck or trucks during the corresponding calendar month of 1941, exclusive of the mileage eliminated by compliance with the provisions of paragraphs (a) and (b) of § 501.68 of General Order O.D.T. No. 17. In the event such carrier was not engaged in the transportation and delivery of newspapers in such operating unit during the corresponding month of 1941, the mileage operated by such truck or trucks during the month of May, 1942, shall be used as a basis for computing the required mileage reduction.

Effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-4
DELIVERIES TO VESSELS

§ 521.2878 DEFINITIONS. As used herein, the term "vessel" means any watercraft or other artificial contrivance of whatever description which is used, or is capable of being, or is intended to be, used as a means of transportation by water.

§ 521.2879 DELIVERIES TO VESSELS. Any motor carrier when operating a motor truck in local delivery service and engaged in making deliveries to a vessel which is being supplied, repaired, loaded or unloaded, is hereby relieved, in respect of such operation, from compliance with the provisions of paragraphs (a) and (c) of § 501.68 of General Order O.D.T. No. 17.

Effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-5
TRANSPORTATION OF MINE PRODUCTS

§ 521.2880 TRANSPORTATION OF MINE PRODUCTS. Any motor carrier when operating a motor truck engaged exclusively in the transportation of the products of a mining, smelting, or refining enterprise, if such enterprise is operated under a Preference Rating Order or a Certificate of Operation issued by the War Production Board, from a mine to the preparing, smelting, or refining facilities or to the nearest adequate rail or water shipping point, or between preparing, smelting, or refining facilities, or when operating a motor truck engaged exclusively in the transportation of the waste products of such a mining, smelting, or refining enterprise from the mine, preparing, smelting, or refining facilities to the point of disposal of such waste products, is hereby relieved, in respect of trucks engaged in such transportation, from compliance with the provisions of § 501.67 and subparagraph (2) of paragraph (a) of § 501.69 of General Order O.D.T. No. 17.

Effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-6
TRANSPORTATION OF ICE

§ 521.2881 TRANSPORTATION OF ICE. Notwithstanding the provisions of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, any motor carrier when operating a motor truck in local delivery service and engaged in the transportation and delivery of ice may make more than one delivery of ice to any carrier, whether by rail, water, air, or motor vehicle in any one calendar day, and may make two deliveries of ice to any industrial air conditioning plant or to any retail dealer in ice in any one calendar day.

Effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-7
TRANSPORTATION OF RUBBER AND METAL SCRAP

§ 521.2882 TRANSPORTATION OF RUBBER AND METAL SCRAP. Any motor carrier when operating a motor truck engaged in the transportation of rubber scrap or ferrous or non-ferrous metal scrap to a manufacturing or processing plant, or to a person who sorts, segregates or prepares such scrap, or to a rail, water, or motor shipping point, is hereby relieved, in respect of trucks engaged in such transportation, from compliance with the provisions of § 501.67 and subparagraph (2) of paragraph (a) of § 501.69.

Effective August 1, 1942, until October 31, 1942, unless otherwise ordered.

Issued July 29, 1942.

General Permit O.D.T. No. 17-8
TRANSPORTATION OF PREPARED FOODS TO RESTAURANTS

§ 521.2883 TRANSPORTATION OF PREPARED FOODS TO RESTAURANTS. Notwithstanding the provisions of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, any motor carrier when operating a motor truck in local delivery service may make three deliveries in any one calendar day of prepared foods or their containers between any establishment in which such foods are prepared for consumption and any restaurant, if such motor carrier is the owner and operator of such establishment and of such restaurant.

This General Permit shall become effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-9
TRANSPORTATION OF COPY, PROOFS OR TRACINGS

§ 521.2884 TRANSPORTATION OF COPY, PROOFS OR TRACINGS. Notwithstanding the provisions of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, any motor carrier operating a motor truck in local delivery service when such truck is engaged exclusively in the transportation of copy, proofs, tracings, or any other unfinished product for printing, blue printing, electrotyping, stereotyping, mimeographing or other similar process, (not including, however, supplies or any finished product) may make three deliveries of such unfinished products in any one calendar day.

Effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-10
TRANSPORTATION OF BAKERY PRODUCTS

§ 521.2885 TRANSPORTATION OF BAKERY PRODUCTS. Notwithstanding the provisions of paragraph (c) of § 501.68 of General Order O.D.T. No. 17, any motor carrier when operating a motor truck in local delivery service may make three deliveries in any one calendar day of bakery products from a bakery to a retail store at which such bakery products are sold, if such motor carrier is the owner and operator of such bakery and of such store and if seventy-five (75) per cent of such bakery products are transported unwrapped.

Effective August 1, 1942, until further order. Issued July 29, 1942.

General Permit O.D.T. No. 17-11
TRANSPORTATION OF FOREST PRODUCTS

§ 521.2886 TRANSPORTATION OF FOREST PRODUCTS. Any motor carrier is hereby relieved from compliance with the provisions of § 501.67 subparagraph (2) of paragraph (a) of § 501.69 of General Order O.D.T. No. 17, in respect of the operations of any motor truck when engaged exclusively in the transportation of forest products, as follows:

(a) Sawlogs, veneer logs, peeler logs, bolts, or unfinished lumber, from the point of production to a sawmill, a processing plant, the nearest point at which adequate rail or water transportation is available, or to any other point which is nearer to such point of production than such rail or water transportation point;

(b) Finished lumber from a processing plant which does not have rail or water shipping facilities to the nearest point at which adequate rail or water transportation is available;

(c) Poles, pilings, posts, round timbers, hewn ties, or fuel-wood from the point of production to the nearest point at which adequate rail or water transportation is available, or to any other point which is nearer to such point of production than such rail or water transportation point;

(d) Pulpwood, chemical wood, extract wood, or pulpwood logs to a point at which adequate rail or water transportation is available, or to a consuming, processing or storage point.

Effective August 1, 1942, until further order. Issued July 31, 1942.

General Permit O.D.T. No. 17-12
TRANSPORTATION IN CONNECTION WITH CONSTRUCTION

§ 521.2887 OPERATIONS WITHIN A CONSTRUCTION AREA. Any motor carrier when operating a motor truck wholly within the territorial limits of a construction project and engaged in the transportation of property used or to be used in or in connection with such construction project is hereby relieved, in respect of any truck engaged in such transportation, from compliance with the provisions of § 501.67, paragraph (c) of § 501.68 and subparagraphs (1) and (2) of paragraph (a) of § 501.69 of General Order O.D.T. No. 17.

§ 521.2888 OPERATIONS OF DUMP TRUCKS. Any motor carrier operating a dump truck in local delivery service when such truck is engaged exclusively in the transportation of soil or waste material from or to a construction project is hereby relieved, in respect of trucks so engaged in such transportation, from compliance with the provisions of § 501.67, paragraph (c) of § 501.68 and subparagraph (2) of paragraph (a) of § 501.69 of General Order O.D.T. No. 17.

Effective August 1, 1942, until further order. Issued July 31, 1942.

General Permit O.D.T. No. 17-13
CALL BACKS BY SERVICE OR REPAIR TRUCKS

§ 521.2889 CALL BACKS BY SERVICE OR REPAIR TRUCKS. Notwithstanding the provisions of paragraph (b) of § 501.68 of General Order O.D.T. No. 17, any motor carrier when operating a motor truck engaged exclusively in the transportation of repair or service men and their supplies or equipment may make call backs with such truck.

Effective August 12, 1942, until further order. Issued August 12, 1942.

General Permit O.D.T. No. 17-14
SMALL AND SPECIALLY DESIGNED TRUCKS

§ 521.2890 SMALL AND SPECIALLY DESIGNED TRUCKS. Any motor carrier operating a truck (a)

(TURN TO PAGE 76, PLEASE)

Here is one of the great vans from the 100% Exide-equipped gasoline operated vehicles of the Manhattan Storage and Warehouse Co. They have used Exides for 20 years.

BUY TO LAST
SAVE TO WIN

...This symbol means Exide to the Manhattan Storage and Warehouse Company

NO small operator is the Manhattan Storage and Warehouse Company. One of their warehouses is the largest in the world . . . their facilities can handle precious art objects, rare rugs and silver, or the everyday furnishings of an average household. Naturally, when this company buys batteries for its trucks, it wants the very finest obtainable . . . and just as naturally . . . its choice is Exide.

Exide Batteries are used in the local and long-distance gasoline operated vans and Estimators' Cars of Manhattan Storage. They deliver their dependable current under all the difficult conditions of city driving. They stand up for years on the road . . . where it counts. The average life of these sturdy Exides is 2½ to 3 years . . . and is a mighty good reason why this fleet is *100% Exide-equipped.*

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EXTRA DUTY
BATTERIES

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
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GENERAL ORDER

ODT 23

LIMITATION ON SPEED OF MOTOR VEHICLES

TITLE 49—TRANSPORTATION AND RAILROADS

CHAPTER II—OFFICE OF DEFENSE TRANSPORTATION (General Order ODT 23)

PART 501—CONSERVATION OF MOTOR EQUIPMENT

SUBPART O—LIMITATION ON SPEED OF MOTOR VEHICLES

By virtue of the authority vested in me by Executive Order No. 8989, issued December 18, 1941, and by Executive Order No. 9156, issued May 2, 1942, and in order to conserve and providently utilize vital transportation equipment, material, and supplies, including rubber; and to provide for the prompt and continuous movement of necessary traffic, the attainment of which purposes is essential to the successful prosecution of the war:

IT IS HEREBY ORDERED, That:

Sec.
501.125 Definitions
501.126 Limitation on speed
501.127 Exemptions
501.128 Communications
501.129 Effective date

AUTHORITY: §§ 501.125 to 501.129, inclusive, issued under E.O. 8989, 6 F.R. 6275, and E.O. 9156, 7 F.R. 3349.

§ 501.125 DEFINITIONS. As used in this subpart:

(a) The term "person" means any individual, partnership, corporation, association, joint-stock company, business trust, or other organized group of persons, and includes the United States or any agency, territory, or possession thereof, a State or any agency or political subdivision thereof, the District of Columbia, or any trustee, receiver, assignee, or personal representative.

(b) The term "motor vehicle" means any rubber-tired vehicle or machine propelled or drawn by mechanical power and used or capable of being used upon the highways in the transportation of a person or persons or property, but does not include any vehicle, locomotive, or car operated exclusively on a rail or rails.

§ 501.126 LIMITATION ON SPEED. No person shall drive or operate, or cause, permit, suffer, or allow to be driven or operated, any motor vehicle within the continental limits of the United States at a rate of speed which is (1) in excess of the applicable speed limit duly prescribed by competent public authority, or (2) in excess of thirty-five (35) miles per hour, whichever rate of speed is the lesser.

§ 501.127 EXEMPTIONS. The provisions of this subpart shall not apply to:

(a) Any motor vehicle driven or operated by or under the direction of the military or naval forces of the United States, or State military forces organized pursuant to Section 61 of the National Defense Act, as amended;

(b) Any motor vehicle when driven or operated in an emergency for the protection or preservation of life, health, or for public safety: PROVIDED, That this paragraph shall not be so construed as to 1. authorize any such motor vehicle to be driven or operated at a rate of speed in excess of that which is reasonable under conditions prevailing at such time.

§ 501.128 COMMUNICATIONS. Communications concerning this subpart should be addressed to the Division of Law, Office of Defense Transportation, Washington, D. C., or to the field office of the Office of Defense Transportation designated for the area in which the home office or principal place of business of the correspondent is located. Such communications should refer to General Order ODT 23.

§ 501.129 EFFECTIVE DATE. This subpart shall become effective October 1, 1942, and shall remain in full force and effect until further order of the Office of Defense Transportation, except that as to any person operating any motor vehicle for hire in scheduled regular route service it shall become effective on October 15, 1942.

Issued at Washington, D. C., this 26th day of September, 1942.

/s/ Joseph B. Eastman
Director of Defense Transportation

ODT

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(TURN TO PAGE 76, PLEASE)

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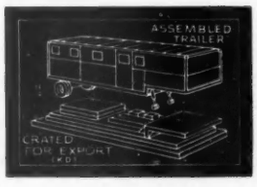

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ODT GENERAL PERMITS

(CONTINUED FROM PAGE 72)

which can be utilized only for the transportation of that type of property for which it is specially designed, and not for the transportation of property generally; or, (b) where the primary carrying capacity is occupied by built-in loading racks, trays, or crates designed for the loading of specific property; or, (c) where the rated load-carrying ability, as defined in the provisions of paragraph (g) of § 501.65 of General Order O.D.T. No. 17, does not exceed twelve thousand pounds, is hereby relieved, in respect of trucks so engaged, from compliance with the provisions of subparagraph (2) of paragraph (a) of § 501.69 of General Order O.D.T. No. 17.

Effective September 8, 1942, until further order. Issued Sptember 8, 1942.

General Permit O.D.T. No. 17-15
MILEAGE REDUCTION REQUIREMENTS; CERTIFICATE OF WAR NECESSITY

§ 521.2891 MILEAGE REDUCTION REQUIREMENTS; CERTIFICATE OF WAR NECESSITY. When a Certificate of War Necessity, as provided by General Order ODT 21, is issued to any motor carrier which certifies the total maximum mileage to be operated by any commercial motor vehicle or vehicles, singly or collectively, during any stated period, such motor carrier is hereby relieved, in respect of such vehicle or vehicles so operated, from compliance with the provisions of § 501.67 of General Order O.D.T. No. 17 as amended: PROVIDED, That the operation of such vehicle or vehicles by such motor carrier shall be governed by the terms and conditions specified in such Certificate of War Necessity.

Effective October 5, 1942, until further order. Issued October 5, 1942.

ODT

ALLOCATION APPEAL BOARDS

DISTRICT NUMBER 1—Maine, New Hampshire, Vermont, Massachusetts and Rhode Island; headquarters, Boston, Mass.

Regular members: Edmund Burke, Hale & Dorr, Boston, Mass. (chairman); Allan J. Wilson, A. Towle Co., 135 High St., Boston, Mass.; John A. Hassey, Cities Service Oil Co., Kenmore Square, Boston, Mass.

Alternate members: Samuel Derby, H. Maynard Gould Co., Walpole, Mass.; Wadsworth Winslow, Boston, Worcester & New York State Railway Co., Framingham, Mass.

DISTRICT NUMBER 2—New York, New Jersey and Connecticut; headquarters, New York City, N. Y.

Regular members: William V. Logan, Office of Civilian Defense, New York, N. Y. (chairman); George F. Whitehead, Arrow Carrier Corp., New York, N. Y.; R. J. O'Hare, Sheffield Farms Co., Inc., New York, N. Y.

DISTRICT NUMBER 3—Eastern Pennsylvania, Maryland, Delaware, District of Columbia, and Northampton and Accomac counties in northern Virginia; headquarters, Philadelphia, Pa.

Regular members: Gavin W. Laurie, Atlantic Refining Co., Philadelphia, Pa. (chairman); J. Albert Kramer, Rabiger-Kramer, Inc., 777 Schuylkill Ave., Philadelphia, Pa.; Robert A. Mitchell, 785 City Hall, Philadelphia, Pa.

Alternate member: L. A. Rosenthal, Pyramid Motor Freight Corp., 2840 East Allegheny Ave., Philadelphia, Pa.

DISTRICT NUMBER 4—West Virginia, Ohio and western Pennsylvania; headquarters, Columbus, Ohio.

Regular members: George W. Rowe, 817 West Fifth Ave., Columbus, Ohio, (chairman); Dana B. Gee, Capital City Products Co., Columbus, Ohio; James L. Boulger, 17 South High St., Columbus, Ohio.

Alternate members: H. H. Buell, Eastern Motor Dispatch, Inc., 1260 Cleveland Ave., Columbus, Ohio; Ralph L. Jacobs, Arcodel System, Columbus, Ohio.

DISTRICT NUMBER 5—North Carolina, South Carolina and Virginia; headquarters, Charlotte, N. C.

Regular members: Benjamin F. Matthews, Belk Bros., Charlotte, N. C. (chairman); Stowe Moody, Interstate Milling Co., Charlotte, N. C.; K. J. Kindley, Queen City Coach Co., Charlotte, N. C.

Alternate member: J. D. Kluttz, Horton Motor Lines, Inc., 1001 South Clarkson St., Charlotte, N. C.

DISTRICT NUMBER 6—Alabama, Georgia and Florida; headquarters, Atlanta, Ga.

Regular members: Jack Berman, Georgia Motor Express, Inc., 551 North Ave., N. W., Atlanta, Ga. (chairman); R. A. Cannon, Atlanta Metallic Casket Co., Atlanta, Ga.; Sollace Mitchell, Fourth Civilian Defense Region, Atlanta, Ga.

Alternate member: A. G. Boone, The A. G. Boone Co., Atlanta, Ga.

DISTRICT NUMBER 7—Tennessee, Kentucky and Mississippi; headquarters, Nashville, Tenn.

Regular members: Samuel K. Harwell, Jr., Neely-Harwell Co., Nashville, Tenn. (chairman); Jack P. Wehby, Jack Wehby Motor Express, 419 Johnson St., Nashville, Tenn.; F. Bernard Evers, American Bread Co., Fourth Ave. North, Nashville, Tenn.

Alternate members: Charles H. Potter, Southeastern Motor Truck Line, 420 Sixth Ave. South, Nashville, Tenn.; R. Sadler, Greyhound Bus Terminal, Nashville, Tenn.

DISTRICT NUMBER 8—Illinois, Indiana and Michigan; headquarters, Chicago, Ill.

Regular members: Fred L. Faulker, Armour & Co., United States Stock Yards, Chicago, Ill. (chairman); P. C. Johnson, Central Greyhound Lines, 1157 South Wabash Ave., Chicago, Ill.; Ellsworth F. J. Reilly, Office of Civilian Defense, Sixth Region, Chicago, Ill.

Alternate members: Joseph H. Walker, Pres., Shippers Dispatch, Inc., Chicago, Ill.; William Fullerton, Fullerton Motor Truck Service, 1821-63 West 33rd Place, Chicago, Ill.

DISTRICT NUMBER 9—Wisconsin, Minnesota, North and South Dakota; headquarters, Minneapolis, Minn.

Regular members: E. C. Wilson, Munsingwear Co., Minneapolis, Minn. (chairman); Fred Wines, 129

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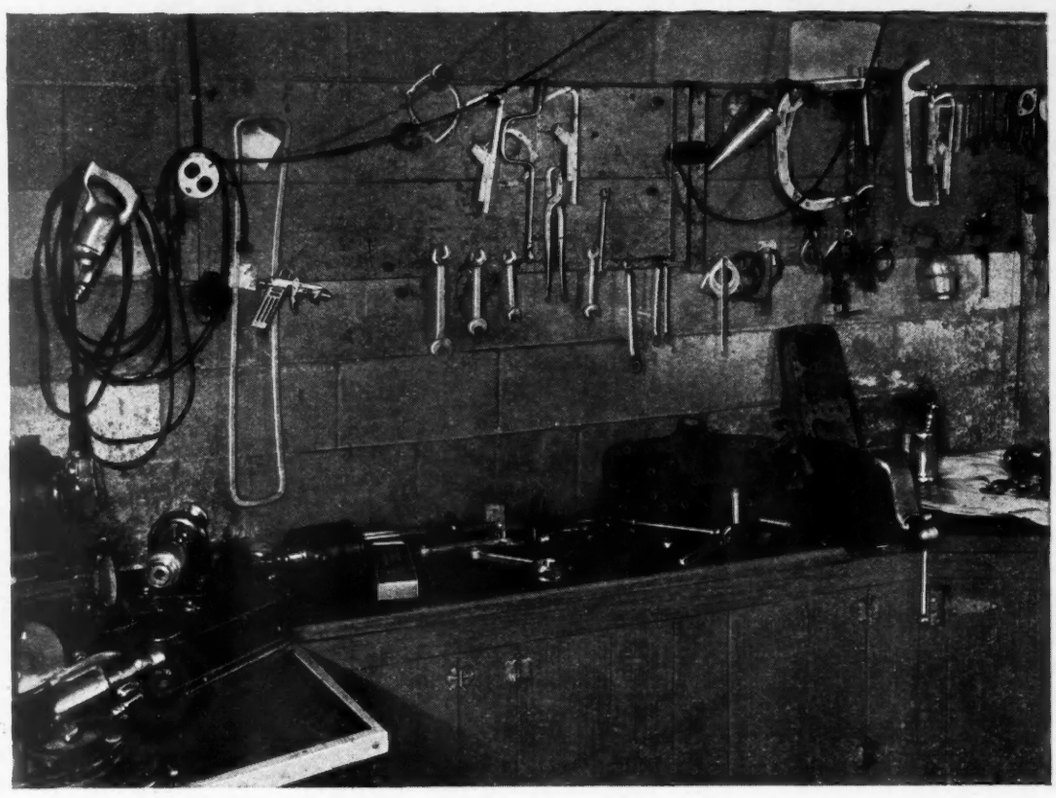

YOU'RE A KEY MAN IN THE WAR PLAN

America is the Arsenal of Democracy, supplying our own and allied armies with guns, ammunition and food.

But who supplies America? How will food and war materials be moved to workers and war plants? How will war workers get to their jobs?

By truck, bus and automobile. Those vehicles do America's biggest job of hauling materials and workers. If, by lack of good service, these units are allowed to rapidly run themselves into the junkpile, America's war effort will soon be brought to a standstill!

That's why you're a key man in the war plan. If you don't do your service job, workers won't get to their war jobs, foods can't be distributed, war materials will lie unused.

Nobody will hand you flags or medals for the service job you're doing and MUST CONTINUE TO DO to prevent a breakdown in our entire transportation system, so vital to the war.

But you're still the king pin. If you stop, they stop. If they stop, our fighting men don't get the guns, ammunition and food they need to win this war.

It's your job and our job to "keep 'em rolling". Our share is to keep manufacturing the parts you need to keep those trucks and buses in top condition, so that they will last longer and operate more efficiently. Let's do this job the best we know how—it's vital to our country.

FEDERAL-MOGUL CORPORATION, Detroit, Michigan

FEDERAL Mogul

ODT ALLOCATION APPEAL BOARDS

(CONTINUED FROM PAGE 76)

Plymouth Ave., Minneapolis, Minn.; H. F. Young, Pillsbury Flour Mill Co., Minneapolis, Minn.

Alternate member: Ferris B. Martin, Minneapolis Transfermen's Association, 550 Gateway Bldg., Minneapolis, Minn.

DISTRICT NUMBER 10—Nebraska, Iowa, Kansas and Missouri; headquarters, Kansas City, Mo.

Regular members: Harry Byers, Byers Transportation Co., 901 Washington St., Kansas City, Mo.; Theodore F. Behler, Columbia Transfer Co., 713 West Penway, Kansas City, Mo.

Alternate members: D. A. Metcalf, Blue Line Transfer & Storage Co., 1719 Wyoming St., Kansas City, Mo.; Frank E. McDonald, Missouri-Pacific Transportation Co., 1724 Washington St., Kansas City, Mo.

DISTRICT NUMBER 11—Arkansas, Oklahoma and Louisiana; headquarters, Little Rock, Ark.

Regular members: J. Lee Daniel, Ritchie Grocer Co., El Dorado, Ark. (chairman); W. R. Daniels, H. R. Cook Truck Lines, Jonesboro, Ark.; Howard H. Conley, New York Life Insurance Co., Little Rock, Ark.

Alternate members: A. E. O'Hara, Southeast Arkansas Freight Line, Pine Bluff, Ark.; M. E. Moore, Arkansas Motor Coaches, Little Rock, Ark.

DISTRICT NUMBER 12—Texas; headquarters, Fort Worth, Texas.

Regular members: J. Tom Miller, Jr., Miller Truck Lines, 2400 Clinton St., Fort Worth, Texas (chairman); John Massenburg, Dr. Pepper Co., 429 Second Ave., Dallas, Texas; W. H. Francis, Dallas, Texas.

Alternate members: H. E. English, Red Ball Motor Freight Lines, Dallas, Texas; J. P. Kittrell, Pres., Dixie Coaches, Inc., 2805 Logan St., Dallas, Tex.

DISTRICT NUMBER 13—Wyoming, Colorado and New Mexico; headquarters, Denver, Colo.

Regular members: S. A. Markley, M & M Truck Co., 3604 East 46th Ave., Denver, Colo. (chairman); R. S. McIlvaine, Rainbow Bread Co., 117 North 7th Ave., Denver, Colo.; S. Arthur Henry, Colorado National Bank Bldg., Denver, Colo.

Alternate members: Earl F. Buckingham, Buckingham Transportation Co., Denver, Colo.; K. B. Charlesworth, G. M. Denver-Salt Lake-Pacific Stages, Inc., 507 17th St., Denver, Colo.

DISTRICT NUMBER 14—Idaho, Montana and Utah; headquarters, Salt Lake City, Utah.

Regular members: James W. Collins, 93 Laurel St., Salt Lake City, Utah (chairman); William Birrell, Birrell Bottling Co., 624 Glendale St., Salt Lake City, Utah; Willard Richards, Rio Grande Motor Ways, Salt Lake City, Utah.

Alternate members: Rex Shephard, Utah-Arizona Freight Lines, 1031 Southwest Temple, Salt Lake City, Utah; Ray Lilenquist, Inland Freight Lines, 120 South 2nd St., West, Salt Lake City, Utah.

DISTRICT NUMBER 15—Oregon and Washington; headquarters, Portland, Ore.

Regular members: Alfred A. Hampson, Dey, Hampson & Nelson, Pacific Bldg., Portland, Ore. (chairman); Arthur Lee, Lee & Eastes Auto Freight Co., Portland, Ore.; Kenneth Pheister, Safeway Stores, Inc., 1139 S. E. Third St., Portland, Ore.

Alternate members: Ellery Sills, Sills Truck Service, 1801 N. W. Upshur St., Portland, Ore.; R. W. Lemen, Oregon Motor Stages, 506 South East Mill St., Portland, Ore.

DISTRICT NUMBER 16—Northern California and Nevada; headquarters, San Francisco, Calif.

Regular members: O. W. Layman, Union Ice Co., 354 Pine St., San Francisco, Cal. (chairman); Tom Meyer, Morris Draying Co., 3000 Elmwood St., Oakland, Calif.; Kent Weaver, Concord, Calif.

Alternate member: Harold Fransher, Valley Motor Lines, 1107 D St., Fresno, Calif.

DISTRICT NUMBER 16—Southern California and Arizona; headquarters, Los Angeles, Calif.

Regular members: Charles G. Anthony, Motor Truck of Southern California, 1855 Industrial St., Los Angeles, Calif. (chairman); A. D. Ferrari, Bohemian Distributing Co., 2254 East 49th St., Los Angeles, Calif.; George W. Rourke, 802 Mullen Ave., Los Angeles, Calif.

Alternate member: John E. Carroll, Signal Trucking Service, Ltd., 3754 East 26th St., Los Angeles, Calif.

JOINT ACTION PLANS

Here are the joint action or pooling plans submitted by various groups of truck operators to effect vehicle conservation and approved by the Office of Defense Transportation and the Department of Justice. These are all the plans approved up to Oct. 16, 1942. Instructions by ODT and the Department of Justice for filing such plans will be found appended to the plans published herewith.

BUFFALO AREA MILK MARKETING PLAN

A plan for join action under General Order No. 6 of the Office of Defense Transportation filed on April 22nd, 1942, by the Milk Marketers within the Niagara Frontier Milk Marketing Area as defined in New York State Order No. 127 issued by Commissioner Holton V. Noyes.

Pursuant to Order O.D.T. No. 6, representatives duly appointed by the Buffalo Milk Distributors Association, The Buffalo Dairy Council, The Milk Council of Tonawanda, The Niagara Falls Milk Council, and the Lockport Dealers, met on May 11th and 12th, 1942, at the Buffalo Athletic Club and adopted the plan which is herein expressed as the plan for the area as defined above under O.D.T. No. 6.

Whereas part 501.32 of O.D.T. Order No. 6 provides for the complete discontinuance of:

(a) Special Deliveries.
(b) Callbacks to any stop within 24 hours.
(c) More than one delivery on any one day to any one customer,

except special deliveries authorized by Sub-section 501.32 ("a" of this section); provided however, that when one day's shipment or shipments to any one person exceed the capacity of a single vehicle, then, and in that event, delivery of such shipment or shipments shall be considered as one delivery.

We are pleased to inform the Director that, starting January 16th, 1942, after the suggestions made by Mr. Livingston of the O.P.A., the marketers of this area put into practice the above regulations now made mandatory on May 15th. The signers of this plan, pledge 100 per cent obedience to this section.

To make possible the above regulations, the industry is on one-stop, daylight delivery for the duration of this order. To accomplish the requirements as expressed in 501.33 *Reduction of Mileage*, the milk marketers of this area will provide every other day service for retail customers, commencing not later than June 1st, 1942.

To facilitate carrying a full load on each truck and to make it possible for the men to efficiently serve the route, the items delivered to stores and homes will, by this joint action, be limited to 18 from a former inventory of 54. This will also greatly increase efficiency of equipment.

To further curtail mileage on wholesale routes, it is agreed that marketers will fully load, but not overload wholesale trucks, will trade outlying customers wherever possible, and will eliminate service where the mileage is too costly and unwarranted in these times. Rerouting of all customers served by each plant will be analyzed, and routes will run on the shortest mileage possible for one-stop, daylight delivery. The elimination of callbacks makes this re-routing very necessary as many stores, restaurants, and hotels received more than one delivery daily.

Application is hereby made under 501.36 Sub-division "E" for an exemption from 501.33 for vehicles employed in the movement of products to plants engaged in war work, which employ more than 2500 people.

In accordance with 501.34, we respectfully submit the above plan of joint action for the marketers of the Niagara Frontier Milk Marketing Area in compliance with Order No. 6, and ask for this plan to be recognized, approved, and cleared, as in conformity with the terms and provisions of the joint statement issued by the Office of Defense Transporta-

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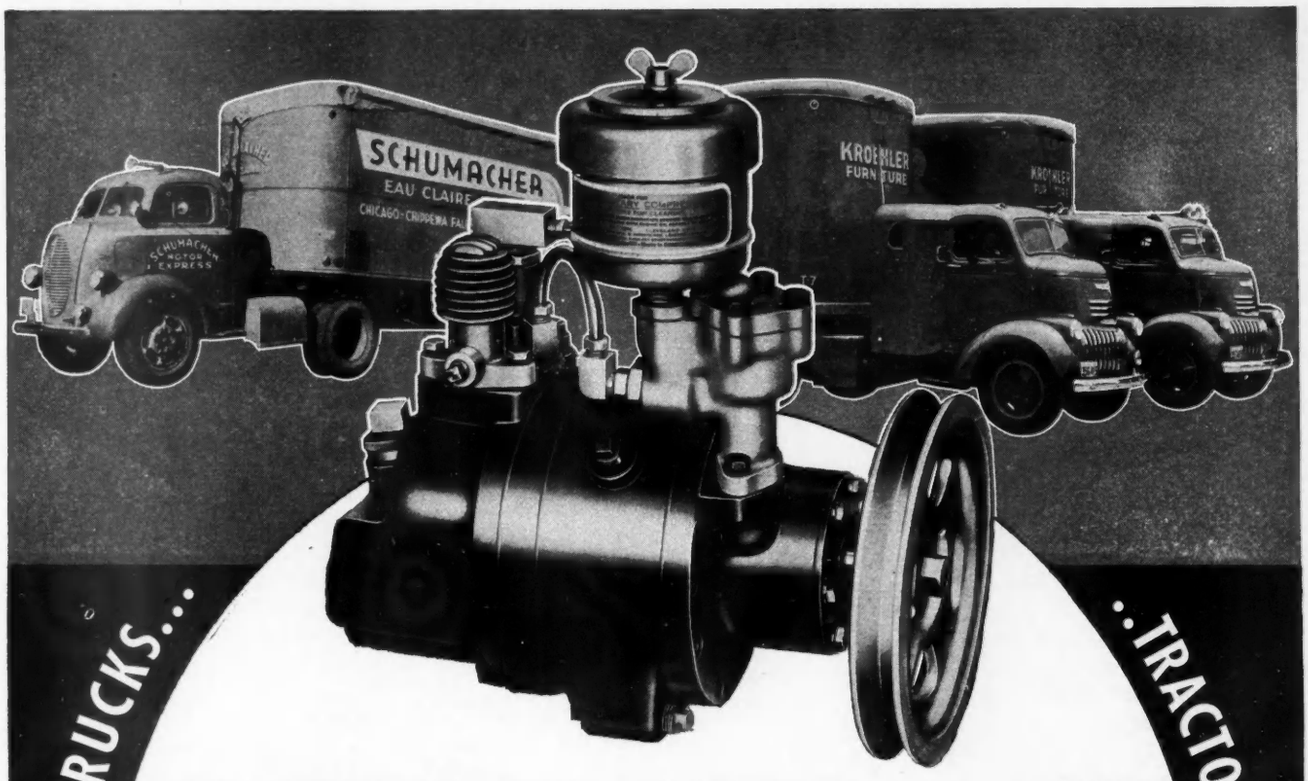


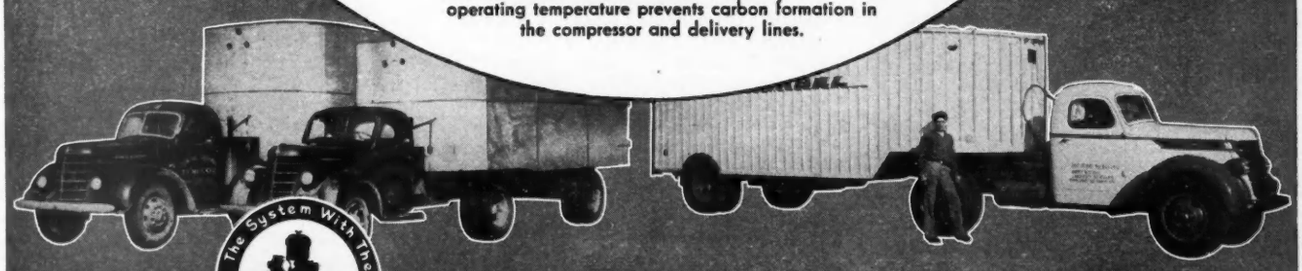
FOR ALL TYPES OF TRUCKS...

...TRACTORS, TRAILERS & BUSES

THE ROTARY AIR COMPRESSOR GIVES WAGNER *Air Brakes* their high efficiency and Outstanding Reliability...

The Wagner Rotary Air Compressor, used only in Wagner Air-Brake Systems, is one of the outstanding developments achieved in the field of automotive air-brake equipment. This revolutionary type of air compressor utilizes the rotary principal to compress the air needed in the air-brake system, and its high efficiency is largely responsible for the absolute dependability of Wagner Air-Brakes.

A few points of excellence of the Wagner Rotary Compressor are,—**1**...Rotary motion—no reciprocating parts. **2** . . . Perfect running balance at all times. **3**...Longer belt life due to more uniform torque loading. **4**...Low friction losses. **5** . . . A pre-determined air pressure automatically maintained. **6** . . . Operating parts "wear-in" instead of "wear-out". **7** . . . Extremely quiet in operation. **8**...Self-contained oiling system. **9**...Compact—requires minimum installation space. **10** . . . Low operating temperature prevents carbon formation in the compressor and delivery lines.



The System With The Rotary Compressor

Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.
BRAKES • TRANSFORMERS • MOTORS • FANS

Send for Catalog KU-50. Every truck, tractor, trailer or bus operator, manufacturer and dealer should have a copy of this air-brake bulletin. It illustrates and describes in detail the THREE Wagner Air-Brake Systems.

JOINT ACTION PLANS

(CONTINUED FROM PAGE 78)

tion and the Department of Justice, dated March 12th, 1942.

EUGENE (ORE.) DAIRY DISTRIBUTORS' PLAN

In order to conserve trucks, tires, other equipment and materials and to comply with the requests of the Office of Defense Transportation in O.D.T. order number 6;

We the undersigned Dairy Products Distributors of the Eugene-Springfield (Ore.) area, respectfully submit the following proposed delivery program for this area for your approval:

PROPOSAL: In addition to regulations set forth in O.D.T. order number 6, we, the undersigned, agree that we will discontinue all wholesale and retail deliveries Thursdays and Sundays of each week.

We will, collectively, advise the public of our plans so that we may enlist their cooperation in conservation of rubber and equipment.

Under this plan, all our trucks will be out of service two full days each week, or the equivalent thereof.

Cloverleaf Dairy, Eugene Farmers Creamery, Medo Land Creamery Co., Dutch Girl Dairy, Clemens Bros., College Ice Cream Co., Egge's Dairy, Wicks Dairy, Reid's Creamery, Witbeck Dairy, Home Service Milk Co., M. N. Pengra Dairy, Valleyfield Dairy, Chula Vista Dairy, Berg Bros. Dairy, Howard's Dairy, Bonnie View Dairy.

WICHITA DAIRY RETAIL DELIVERY PLAN

The undersigned, representing the pasteurized dairy interests of Wichita (Kan.), are desirous of curtailing truck mileage and thereby making a tire saving.

We propose to give every-other-day delivery service on our retail milk routes. In doing this there would be a saving of about 40 per cent of our mileage on retail routes.

The Beatrice Creamery Co., Snyder Ice Cream Co., Decoursey Cream Co., Hyde Park Dairy, Steffen Ice & Ice Cream Co.

DALLAS WHOLESALE FLORISTS' PLAN

All of the wholesale commission florists and supply dealers of Dallas consisting of the below named dealers herewith present for approval a plan for the conservation of tires by consolidated delivery of merchandise to the retail florists in Dallas.

Instead of each firm making their own regular route deliveries covering the greater part of Dallas, the plan which we conservatively estimate to save from 50 per cent to 60 per cent in miles and wear on rubber is as follows:

To minimize hauling, the city has been divided into four districts, to be known as "Downtown and Oak Cliff" as one district, "Oak Lawn and North Dallas" as one district, "Northeast Dallas" as one district and "South Dallas" as one district.

Orders received by all four dealers from each district are to be delivered to each district by truck of only one dealer. In other words, each dealer is to make only one regular delivery to one of the four districts, hauling his merchandise and that of the other three dealers. By rotating the districts to each dealer, any great differences in mileage of the various districts is balanced satisfactorily.

In accord with the order of the O.D.T. there shall be no call backs or special deliveries before or after the regular route deliveries, which shall be scheduled to leave before noon daily, also there shall be no deliveries made on Sundays.

Respectfully submitted, Neff Brothers Wholesale Florists, J. B. Parks Wholesale Florist, H. G. Berning, Inc., Ben Kaiser Wholesale Florist. Explanatory note—The above dealers are grouped fairly close together, being from 1/10 to 2/10 mile apart.

(TURN TO PAGE 172, PLEASE)

JOINT INFORMATION OFFICES

Joint Information Offices, approved by the Office of Defense Transportation as of Oct. 16, 1942, their addresses and managers:

BALTIMORE, MD.—Baltimore Joint Information Office, Room 507-22 Light St., Baltimore, Md. Walter I. Kneys, Manager.

CHICAGO, ILL.—Chicago Joint Information Office, Inc., 10 N. Clark St., Chicago, Ill. James J. Turek, Manager.

CINCINNATI, O.—Cincinnati Joint Information Office, 3129 Spring Grove Ave., Cincinnati, Ohio.—C. T. O'Donnell, Manager.

CLEVELAND, O.—Cleveland Joint Information Office, 1218 Standard Bldg., Cleveland, Ohio.—Edwin C. Reminger, Manager.

COLUMBUS, O.—Columbus Joint Information Office, 3660 A. I. U. Bldg., 50 West Broad St., Columbus, Ohio.—Harvey G. Wagner, Manager.

DES MOINES, IOWA.—Des Moines Joint Information Office, 400 S. W., 9th St., Des Moines, Iowa.—John I. Petty, Manager.

DETROIT, MICH.—Detroit Joint Information Office, 1627 W. Fort St., Detroit, Mich.—C. S. Holecheck, Manager.

KANSAS CITY, MO.—The Joint Information Office of Greater Kansas City, 127 Livestock Exchange Bldg., Kansas City, Mo.—James E. Lockwood, Manager.

LOUISVILLE, KY.—Louisville Joint Information Office, 701 Republic Bldg., 5th and Walnut Sts., Louisville, Ky.—Lew Ullrich, Manager.

PHOENIX, ARIZ.—Phoenix Joint Information Office, 45 W. Lewis Ave., Phoenix, Ariz.—Robert F. Goff, Manager.

WASHINGTON, D. C.—District of Columbia Joint Information Office, 1525 New York Avenue, N.E., Washington, D. C.—J. R. Scott, Manager.

ODT REGIONAL MANAGERS

Following are the regional managers of the nine ODT regions together with their addresses and telephone numbers:

Region I—Wm. J. Clark, 1501 The News Bldg., 220 East 42nd St., New York, N. Y. Murray Hill 3-6805; Extension 97.

Region II—Melvin R. Greene, 1183 Broad Street Station Bldg., 16th and Pennsylvania Blvd., Philadelphia, Pa. Locust 3400.

Region III—John G. Caley, 1211 Candler Bldg., Atlanta, Ga. Walnut 4121.

Region IV—Robert D. Thomas, 1242 Union Commerce Bldg., Cleveland, Ohio. Cherry 7900.

Region V—Harry L. Gormley, Room 474, 209 S. Wells St., Chicago, Ill. Andover 3600; Extension 684.

Region VI—William Addams, (Acting), 307 Bonfils Bldg., 1003 Walnut St., Kansas City, Mo. Victor 7780; Extension 166.

Region VII—John C. Massenburg, 405 Praetorian Bldg., Dallas, Tex. Riverside 5711.

Region VIII—A. J. Merrill, 619 Midland Savings Bldg., Denver, Colo.

Region IX—Harold C. Arnot, Room 421, 1355 Market St., San Francisco, Calif. Klondike 2-2300; Extensions 177-178.

SEALED POWER *and the explosions behind...*

Behind the explosions of bombs or shells or cartridges are the explosions in the engines that take men and guns to the battle field.

And wherever you find gas or diesel engines in this war you are almost sure to find Sealed Power Piston Rings. Service to engine manufacturers, to fleet owners and to motorists in times of peace won for these famed rings a place in the specifications for tanks and army trucks and jeeps, bombers and fighters and pursuits and cargo planes, submarines and torpedo boats and destroyers.

From experience gained in producing millions of rings of advanced design to exacting standards of precision demanded by the severe operating requirements of Army, Navy and Air Corps, come even finer Sealed Power Piston Rings for civilian truck engines.

Trucks are surely entitled to the best possible maintenance—and that means Sealed Power Individually Engineered Ring Sets—designed specially for each make of engine. They save oil, save gas, save engine wear.

FOR ALL POPULAR MAKES OF CARS AND TRUCKS

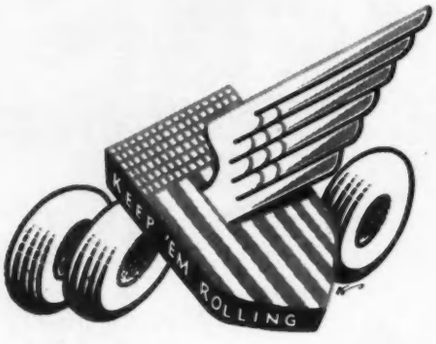
Piston Rings, Pistons, Pins, Valves, Sleeves, Bolts, Bushings, Water Pumps, Tie Rods, Front End Parts.

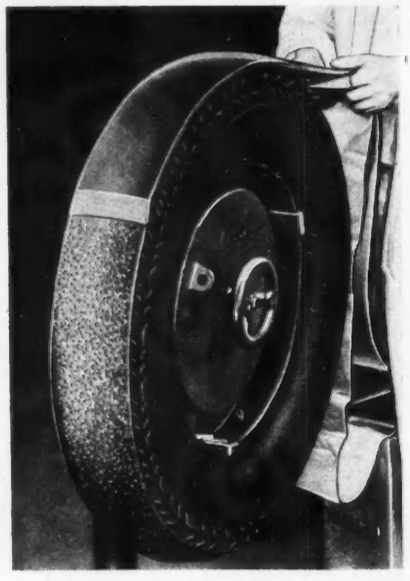
LET'S GO! U.S.A. KEEP 'EM FLYING!

SEALED POWER CORPORATION, Muskegon, Mich.

***In Canada:* Windsor, Ont.**

OPA INSTRUCTIONS FOR RECAPPING





Orders issued to tire rationing inspectors contain standards and maintenance information that fleets will find useful

SPECIFIC directions as to when a tire should be removed for recapping have been put into the hands of tire inspectors by the Office of Price Administration.

The most economical point for recapping either a passenger car or truck tire, according to the OPA instructions, is when the casing is worn smooth approximately three-fourths of the total width of the tread and not beyond the point where there still remains an eighth of an inch of tread rubber above the "breaker strip," or outside ply of cord. However, tires showing considerably more wear than this, and even those that have minor carcass damage, are considered economically recappable, although not so serviceable as those that are removed in time.

A damaged tire is recappable, according to OPA instructions to inspectors, when it does not require more than two sectional repairs of breaks or cuts. When the lesions are more than three inches long, however, or are below the point where the sidewall of the tire contacts the top of the rim flange, the casing cannot be recapped satisfactorily. This applies to truck as well as to passenger car tires.

Truck tires, because of their heavier fabric construction, may be worn somewhat farther than passenger car casings and still be fit for recapping. The ultimate wear for a passenger car tire is through one body ply of cord fabric, while truck tires that are worn through two plies may be recapped.

Besides wear beyond the ultimate points designated, and cuts and breaks more extensive than those described as repairable in the instructions, there are four other kinds of damage that makes tires unfit for recapping: (1) Ply separation; (2) broken or exposed bead wires; (3) failure at the bead reenforcement; (4) separation of cord in inside ply.

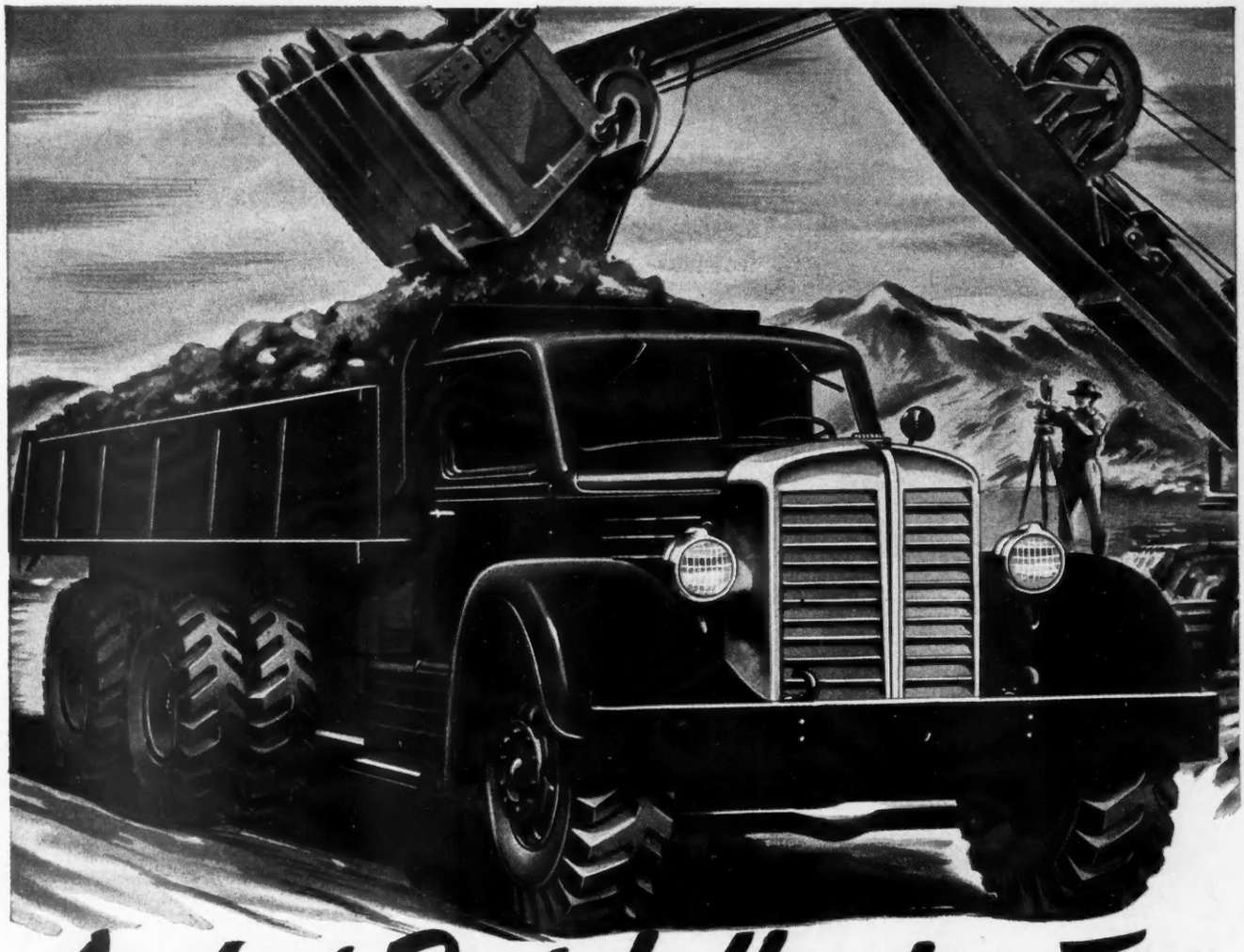
Inspectors are required to report cases of abuse to the local tire rationing board. When they find definite evidence of abuse, they are to note it on the inspection form, which they will mail to the local board having jurisdiction over the area in which the vehicle whose tires are being inspected is normally garaged.

Local boards, in their discretion, may refuse to grant certificates to applicants when the inspector's report shows:

1. The tires to be replaced have been run beyond the point where they can be repaired or recapped.
2. Tread plies have become separated due to overloading, neglect in keeping tires properly inflated, or operation at high speeds.
3. The casing has been damaged by running flat.
4. Dual tires have been improperly matched.
5. Wheels are out of alignment.
6. The tire has been damaged by uneven braking.
7. Spotty wear indicating that the tire has been run on a bent rim.

It is recognized that the above standards are not absolute and that there may be mitigating circumstances. When tires have been damaged by faulty wheel alignment, for instance, or by uneven braking or mounting on a bent rim, the local board may withhold action under the abuse standard if the operator of the vehicle can show that he has corrected the condition or has taken steps to get it corrected.

It is the hope of OPA that no eligible will have to be deprived of tires on the grounds of abuse. It points out that its purpose is to save rubber and not to stop transportation. The existence of the abuse standards and instructions to inspectors may go a long way to wipe out carelessness and neglect.



And at Dutch Harbor, Too-

HUSKY 6-WHEEL FEDERAL TRUCKS HELP MAKE STRONG THE BASTIONS OF AMERICA

Long before the Aleutians became a byword in America, our military strategists were preparing these island bastions of the far north for the defense of our country.

Air bases, landing fields, barracks and port facilities were planned—expanded—rushed to completion as part of our hemispheric defense program. Into this urgent construction work rolled fleets of big, husky, heavy duty Federal Trucks—requisitioned for their unequalled stamina by the engineering contractors assigned "to get the job done."

"For Excellence IN WAR PRODUCTION—"

ARMY E NAVY

• Federal was awarded the Army and Navy "E"—building thousands of the biggest trucks ever used by Uncle Sam for both branches of the Service.

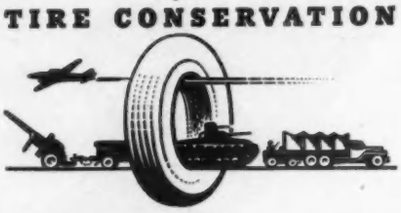
These powerful, six-wheel, tandem-drive units were put to the toughest tests trucks are called upon to face. They performed a magnificent, round-the-clock, non-stop service...aided in forging another strong link in America's spreading battle lines.

Federal's strict adherence to its famous *balanced* type of engineering design has supplied both our own and our Allies' workfronts and war fronts with the kind of job-tailored fitness and bred-in-the-bone dependability that spells a new high in serviceability. Again we repeat: *Toss the Tough Jobs to Federal!*

FEDERAL MOTOR TRUCK CO., DETROIT, MICHIGAN

FEDERAL TRUCKS

Since 1910... Known in Every Country—Sold on Every Continent



ALIGNMENT & BALANCE

Continued from Page 43

Toe-Out

When wheels are toed-out excessively, the side drag will be in the opposite direction to that shown in Fig. 2. Feather edge wear will occur as indicated in Fig. 3. The feather edges can be felt by rubbing the hands across the face of the tire in the direction of the arrows. Rubbed in the opposite direction, tires will feel smooth. Toe-out wear is usually more pronounced on the left wheel than on the right.

Camber

Camber has the effect of deforming the tread of the tire so that it takes the form of a cone with the outside edge of the tread actually revolving on a shorter radius than the inside of the tread. This means that either the outside edge must make more revolutions to keep up with the inside or slip on the pavement; but since the former is impossible the latter must take place and the outside edge of the tread must slip. See Fig. 5.

Camber wear is always greater on the side of the tire at the outside of the truck provided, of course, the tire has not been reversed on the rim. Many times this wear takes the form of deep depressions or waves or "heel and toe." See Fig. 4. In the case of the wear coinciding with the tread pattern, it will be found that it is the end of the pattern which leaves the pavement last that shows the greatest wear. This is caused by the fact that the rubber absorbs the misalignment, or movement, until the pattern is just ready to leave the pavement, at which time the weight of the truck is being absorbed by the next pattern. This permits the pattern to slip or snap as it leaves the pavement, which results in friction and wear at the end of the pattern, causing heel and toe effect. In cases where the tread is smooth or ribbed, the rubber merely absorbs the misalignment until the limit of its elasticity is reached and thereafter slips sideways steadily, although it may absorb the entire misalignment and cup at a brake high spot or wheel movement caused by some mechanical defect or out of balance condition.

Excellent tire mileage, so far as camber wear is concerned, will usually be found to occur on wheels having 1 deg. or less of camber. Trucks carrying exceptionally heavy loads can use more camber. Reverse camber causes hard steering and, of course, abnormal tire wear. Camber wear will always show abnormal wear on inside or outside shoulder of tread, depending on whether there is too much or too little camber. See Fig. 6.

Caster

Caster of itself does not cause tire wear but may cause an error in camber, toe-in or steering geometry, thus resulting in wear that is characteristic of the particular misalignment condition.

Trailer Camber

Incorrect camber of the dead axle on trailers will produce the same abnormal tire wear as incorrect camber of a front axle. When dual wheels are used on the trailer, the spring is set farther away from the outside tire which produces considerable strain upon the axle. This has a tendency to give the dead axle reverse camber when loaded, causing rapid tire wear, particularly on the inner tire. See Fig. 7. This wear will always show up on the inside or outside shoulder of the tread, depending on whether too much or too little camber. To correct this condition on trailer dead axles, the axle is given a camber of approximately one-half degree so that when loaded the wheels will run straight without camber and without toe-in.

Tracking

Incorrect tracking of the rear wheels will sometimes cause one tire to wear abnormally. In some cases one tire will wear smooth while its mate will be in good condition. In other cases the wear will show up on the inside of one tire and the outside on the other tire. Wear will resemble toe-in or toe-out wear, but the feather edge wear will be less pronounced.

Unbalanced Wheels

Unbalanced wheels (all alignment factors being correct) cause a pitting or cupping of tires. The wear can be felt by the fingers as small irregular depressions on the smooth surface of the treads. See Figs. 9 and 10. In the case of static unbalance, one spot will appear opposite the heavy portion of the wheel. In the case of dynamic unbalance it may appear all around the tire tread.

Static balance is the method of balancing a wheel by placing weights on the rim beside the lightest point and testing for balance on a free shaft that will turn with very little friction. If the center of gravity lies in the center of the shaft, the wheel will stay in position when stopped with any point of its circumference over the shaft.

Dynamic balance is the method of balancing a wheel by revolving the wheel around the center line of a shaft. When performed on a proper balancing machine, it will show up any wobble of a wheel and indicate where to place balance weights so the wobble caused by dynamic force is eliminated. In other words dynamic balance is the balancing of a wheel while it is in motion.

Unbalanced wheels rapidly cause looseness in all moving parts of the steering linkage; tie-rod, king pin, wheel bearings, etc. This in turn will cause tire wear characteristic of that misalignment condition. Undoubtedly unbalanced wheels help to form flat spots, cups, waves and gouges, but it is probable that they influence such wear merely by permitting slippage at systematic intervals.

From the foregoing facts may be drawn the conclusion that to get the utmost in mileage out of tires, the wheels of a truck or car must roll, not skid, scuff or slide sideways down the road. And they must roll smoothly, not bump, hop or pound.

Correct alignment will make them roll; correct balance will make them roll smoothly.

END

(Please resume your reading on P. 44)

Rubber Scrap Pile Larger

The rubber scrap pile of the nation is considerably larger than it is generally thought to be if figures compiled by Standard Oil Company of Indiana may be taken as an index.

Immediately following the scrap rubber drive Standard gathered reports and announced that 41,798 tons had been collected in the fourteen states in which it operates. About the same time an announcement was made from Washington that 454,155 tons had been collected in the country as a whole.

As the scrap rubber has been cleared from collection points Standard has received weekly reports of the amount shipped and the amount remaining on hand. Early in October these reports showed 40,793 tons already shipped and 8,367 tons remaining on hand. It appears therefore that Standard's total collection was 49,160 tons or nearly 18 per cent more than was first reported.

The latest figures available show that Standard and its subsidiaries together collected 61,271 tons of scrap rubber or about 13.5 per cent of the nationwide total as originally reported.

The oil industry is shipping scrap rubber to central receiving depots and rubber reclaiming plants at the rate of about 4,000 tons a day.

SHULER AXLES FOR LINN TRACTORS

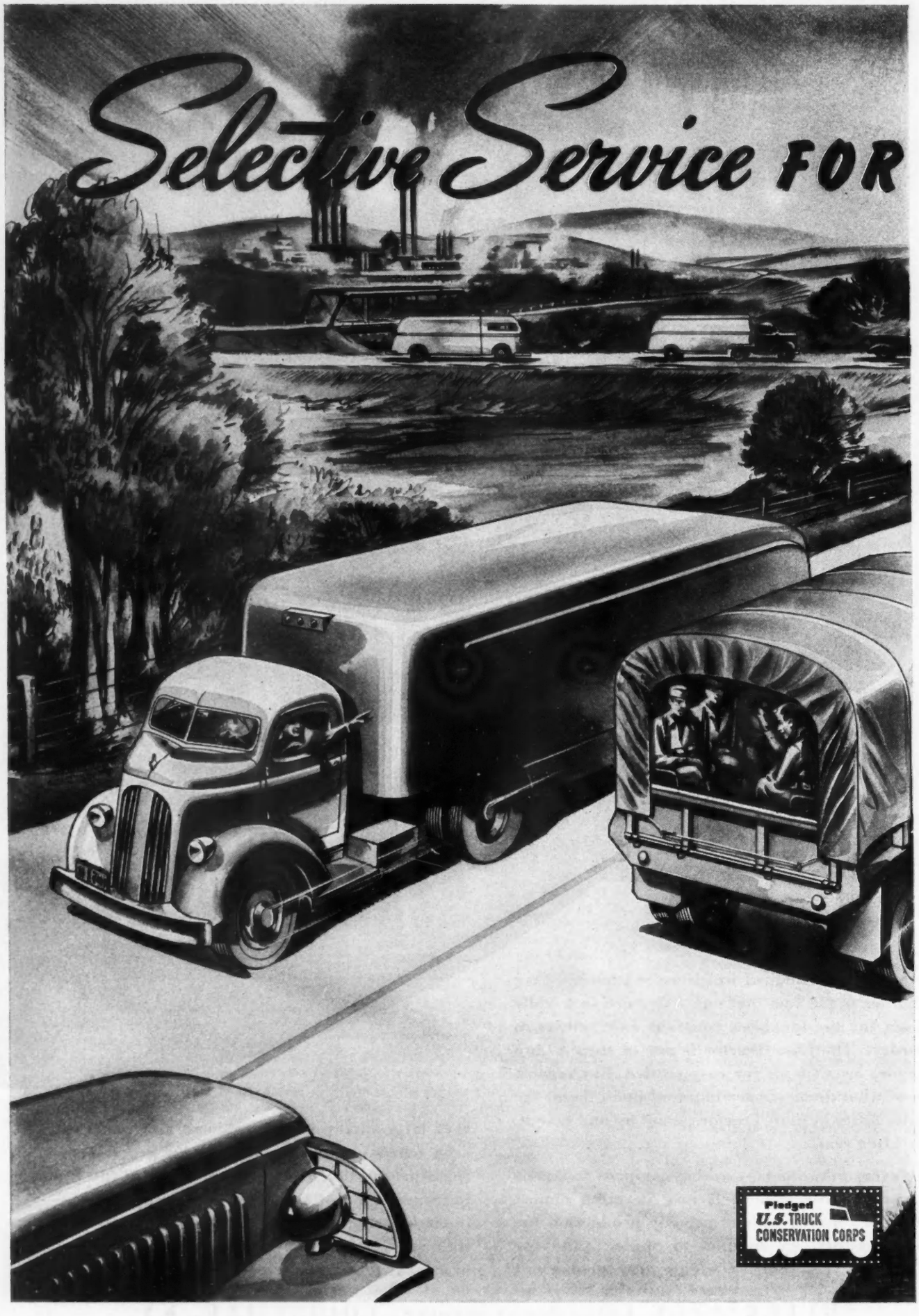
● One of the things of which we're proudest here at Shuler is the fact that our Axles are so usually chosen for the toughest, roughest assignments in industry. The Linn Tractor is one of them. Linn Tractors aren't built for easy service. But regardless of what demands are imposed upon them, the Shuler Axles in Linn Tractors stand up and take it, year after year.

Like every other metal-working company in America, we suppose, Shuler is now devoting almost 100% of capacity to high-priority production for the war effort. In addition to Shuler Axles for all sorts of vital vehicles, we are also turning out very large quantities of tank and gun parts. But even when we have to turn down actual orders from prospective new customers, we are still finding ways to be of service to many new friends—in engineering help, and in advice as to other possible sources of supply. If we can conceivably be of assistance to you, please give us the opportunity.

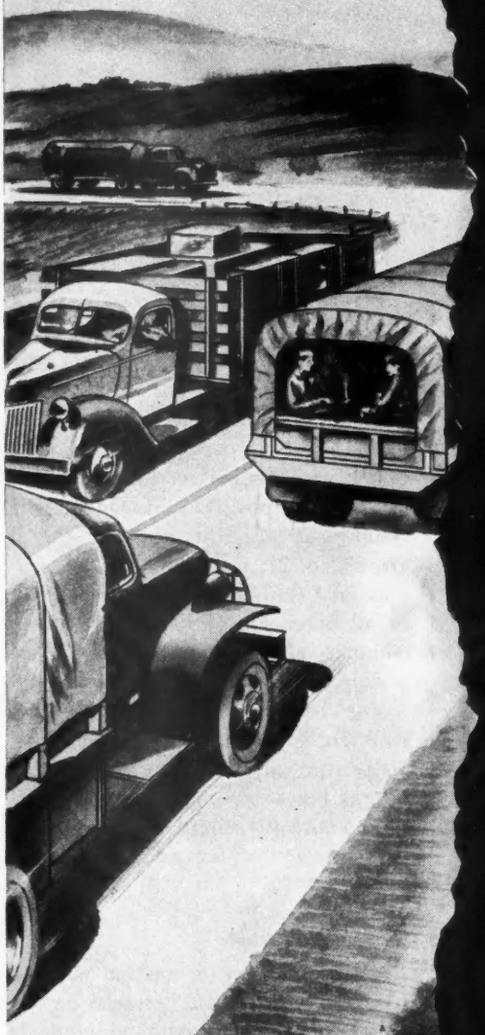
SHULER AXLE CO., *Incorporated*, LOUISVILLE, KY.

Export Division: 38 Pearl St., New York, N. Y.

West Coast Warehouse: Ford & Derby Streets, Oakland, Calif.


Selective Service FOR
Pledged
U.S. TRUCK
CONSERVATION CORPS

TRUCKS!



THEY'RE ALL "IN THE ARMY" NOW!

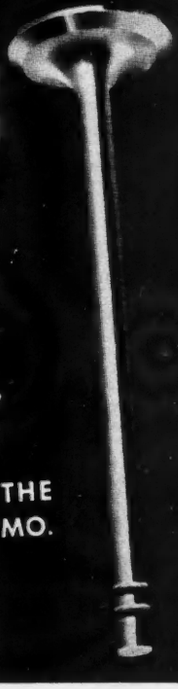
• The national registration of commercial vehicles, now nearing completion, is in many ways a tribute to the great work truck men are performing. Truck power, like manpower, is vital. It must be conserved.

Under the new Office of Defense Transportation ruling trucks will be called upon to play a more active part than ever in the war effort. Strained to the breaking point, meeting stop watch schedules, they must keep rolling!

Continued operation of necessary vehicles depends on *good* engine parts. Take care of those you have. When replacement is necessary, go to the jobber who handles none but reliable parts, including—

RICH VALVES

of Silchrome-X Steel



the McQuay-Norris Jobbers

IN ALL PRINCIPAL CITIES. AMPLE STOCKS AND IMMEDIATE SERVICE ON THE PRODUCTS OF McQUAY-NORRIS MANUFACTURING COMPANY, ST. LOUIS, MO.

ODT'S PLANS TO KEEP 'EM ROLLING

(CONTINUED FROM PAGE 26)

nation's transportation facilities steadily increasing.

The Battle of Trucks

Responsible officials have stated that we are only ankle-deep in the war. We also are only ankle-deep in the battle of trucks.

This battle of trucks is being waged on two main fronts—conservation through the more efficient use of existing facilities and conservation through better maintenance. It should be apparent to everyone in the industry that both of these programs require some form of national direction and control. It also should be apparent that to succeed these programs must have the active cooperation of everyone who has anything to do with the use and maintenance of the country's trucks. This is true not only of those programs which are conducted on a voluntary basis but also of those which are instituted by means of ODT orders.

The great majority of operators throughout the country have demonstrated their willingness to cooperate with ODT regulations by making an effort to reduce mileage, eliminate unnecessary operations and take better care of their equipment. Many operators have been able to accomplish savings in excess of minimum ODT standards while at the same time handling a substantially increased volume of business. On the whole, General Order No. 3, governing operations of common carriers in over-the-road service; General Order No. 6, governing operations of common carriers in local delivery service, and General Order No. 17, governing all operations of contract and private carriers, have been well received and have opened the way for thoroughgoing conservation throughout the industry.

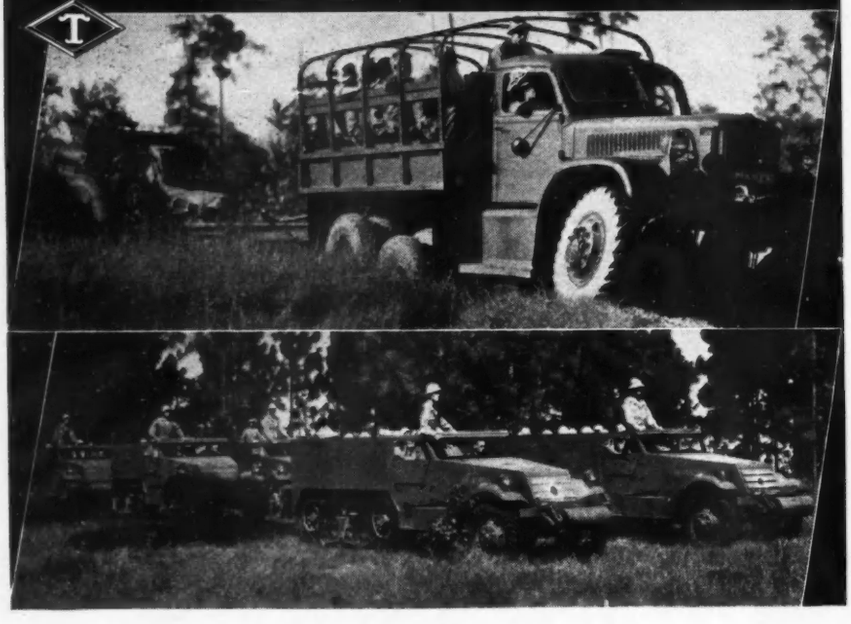
So individualistic, however, are many phases of the trucking industry that it was deemed necessary to place the wartime program on a more personal basis. For this reason, General Order No. 21, providing for the issuance of Certificates of War Necessity to all operators of trucks and other commercial vehicles, was issued. This program, it is hoped, will work no undue hardship on those operators who are making a sincere effort to cooperate with the emergency regulations but will serve to bring operators who have clung to the "get-it-while-the-getting-is-good" attitude into line.

No Time for Waste

The new program has but one objective—to keep our present supply of trucks and other commercial vehicles rolling until the war has been won. It is hardly necessary to point out that in the past there has been a great deal of waste and inefficiency in the trucking industry. It has not been uncommon for trucks to haul loads long distances and return empty. Many miles have been wasted in traveling over circuitous routes in order to pick up out-of-the-way cargoes. So keen has been the spirit of competition in the trucking industry, as in other American business enterprises, that millions of miles have been run merely to build up reputations of prompt service.

(TURN TO PAGE 90, PLEASE)

DIAMOND T Cargo Trucks and Half-Tracs *for our country's fighting men*

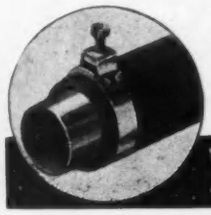


EQUIPPED WITH

WITTEK NOC-OUT HOSE CLAMPS

Speeding over the roughest ground, climbing steep embankments and traveling through the deepest sand and snow and muck, these modern military vehicles, manufactured by Diamond T Motor Car Company, are equipped with Wittek Noc-Out Hose Clamps.

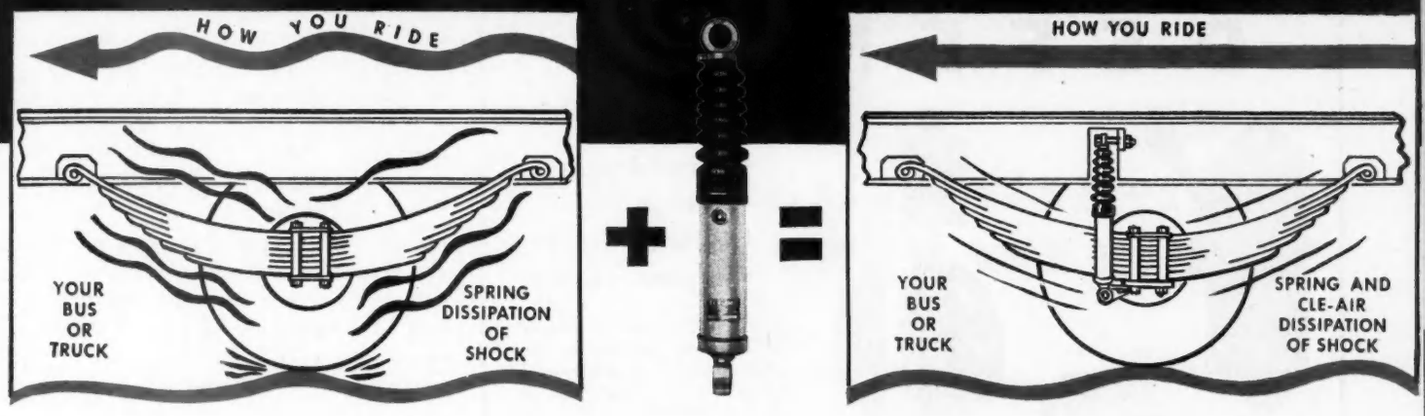
Identified with the automotive and trucking industries for more than 20 years, Wittek Noc-Out Hose Clamps have established and maintained a standard of quality that guarantees a uniform perfect seal on all hose connections for busses, tanks, trucks and tractors.

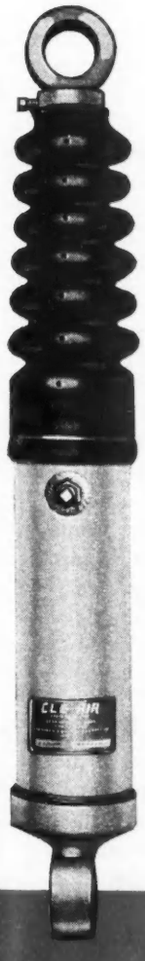


THE STANDARD OF THE INDUSTRY

WITTEK *manufacturing* co.
4305-15 WEST 24TH PLACE, CHICAGO, ILLINOIS

How CLE-AIR SHOCK ELIMINATORS change a ROUGH RIDE into a SMOOTH GLIDE


HOW YOU RIDE
YOUR BUS OR TRUCK
SPRING DISSIPATION OF SHOCK
HOW YOU RIDE
YOUR BUS OR TRUCK
SPRING AND CLE-AIR DISSIPATION OF SHOCK



On a rough road, the vehicle (at left) hits a second bump before the springs have had time to recover normally. Consequently, the springs react against themselves, causing a series of sharp destructive shocks that are transmitted to every part of the vehicle. By contrast, the Cle-Air equipped vehicle (at right) is protected by a cushion of resilient air that absorbs road shocks, while hydraulic action snubs the recoil. The vehicle just "breezes along" without bouncing, pitching or sidesway.

These four important features explain why Cle-Air Shock Eliminators give this ride of unmatched smoothness:

1. Cle-Air units are *both* pneumatic and hydraulic. This *double* action is unique. **2.** Exclusive "floating center" principle allows springs to function without restraint on smooth roads. Ordinary shock absorbers, always in action, restrain the springs and often cause hard riding. **3.** Cle-Air units are built with the precision craftsmanship and close tolerances required for the finest aviation work. **4.** As a result, Cle-Air units, if properly serviced, *will last as long as the vehicle.*

Write for your copy of our free booklet, "Meet The Judge." Full of illustrations, diagrams and case histories, it tells how Cle-Air units will protect your fleet.

THE CLEVELAND PNEUMATIC TOOL CO.

AUTOMOTIVE DIVISION — CLEVELAND, OHIO

ODT'S PLANS TO KEEP 'EM ROLLING

(CONTINUED FROM PAGE 88)

These practices may be all right in peacetime, but there is no place for them in the present emergency. Thousands of operators throughout the country have realized this and have taken steps to reduce mileage by eliminating deadheading wherever possible, by carrying larger loads, by revising schedules and otherwise improving the efficiency of their operations. However, there is much more that can and must be done to put the American trucking industry on a full wartime basis. General Order No. 21 sets up a system of individual checks by which it will be possible to tighten up operations all along the line.

Previous Orders in Force

This order does not take the place of conservation orders and statements of policy previously issued. These measures will remain in full force and effect until further notice and will be used as the basis for drawing up Certificates of War Necessity under the new order. In other words, the certificates will be so drawn as to force each operator to conform to mileage and loading requirements contained in other applicable orders. Thus, if an operator is required under any ODT regulation to reduce the mileage of any operating unit to, say, 5000 miles a month, his certificate will allow him only enough gasoline, parts and tires to operate on that basis.

As Mr. Eastman has pointed out in his statement to operators affected by Order 21, it is not proposed to use these certificates in any arbitrary or ruthless manner. It is the intention of the Office of Defense Transportation to allow each operator sufficient mileage to carry on necessary operations, provided these operations are conducted on a basis consistent with the wartime need for conservation of commercial transport facilities.

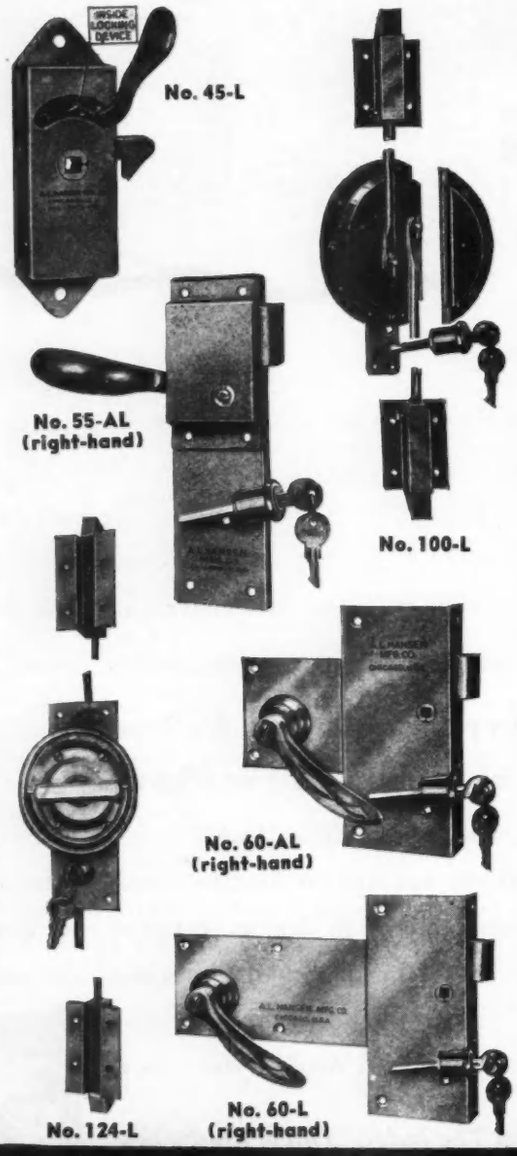
I have no doubt that many operators, especially those engaged in the transportation of war materials, will resent being forced to give an accounting of their operations. But if these operators will think the problems through, they will realize, I am sure, that a uniform plan of conservation is to their own best interests as well as to the best interests of their country. It is fair neither to other operators nor to the public for anyone who controls the use of a truck during this emergency not to make every effort to guard the potential service of that truck to the utmost. The United States is engaged in the toughest war in history. Transportation is just as much a part of this country's war effort as is production or actual military activities at the front. The trucking industry has a job to do on the home front, and the Office of Defense Transportation intends to see to it that every person engaged in that industry does his part.

Equipment Must Be Maintained

Not only is it imperative that unnecessary or inefficient truck uses be eliminated but that the equipment be maintained better than ever before. In order to encourage opera-

(TURN TO PAGE 92, PLEASE)

DEFENSE!



Against—

- **Breakdowns**
- **Delays**
- **Upkeep Costs**
- **Replacements**

WHETHER in defense production, defense service or defense against breakdowns—delays—upkeep costs—or replacements—HANSEN Hardware can be depended upon to "deliver".

Built especially for heavy-duty and severe commercial body service, easy and economical to install—seldom requiring attention or replacements — Hansen Hardware stands back of both builder and user.

New products shown in the new Hansen Catalog defend you against using any but the latest designs.

PRODUCTS ILLUSTRATED

No. 45-L Sliding Door Lock, with Locking Device. Locks in open and closed position.

No. 55-AL Cab Lock (right-hand), with Locking Cylinder and two keys. Built-in pull handle.

No. 100-L Rotary-and-Take-up Lock, with Locking Cylinder. Makes doors wedge-tight.

No. 124-L Slam-and-Take-up Lock with Locking Cylinder and two keys. Tamper-proof.

No. 60-AL (right-hand), fitted with Locking Cylinder and two keys. Locks securely.

No. 60-L (right-hand), with Locking Cylinder and two keys. One-piece construction.

SEND FOR CATALOG—if you don't already have one. It shows the complete line of Hansen Hardware and One-Hand Tackers.

A. L. HANSEN MFG. CO.
5047 Ravenswood Avenue CHICAGO, ILL

"FOR HIGH ACHIEVEMENT IN THE PRODUCTION OF WAR MATERIALS"

WE of Aluminum Industries, Inc., are proud of this new flag that now flies over our four plants. But, we realize that before the job is finished, even greater efforts are called for — and will be gladly given.

At the same time, we will continue to make every effort, consistent with the production of war materials, to meet the demand for Permite Parts for trucks.

We know that the Permite Replacement Parts which we supply you will be used thriftily. We know we can depend upon you to see that worn parts are reconditioned, and that when new parts are installed, accompanying instructions are closely followed to assure the long life that has been engineered into the parts.

The* PERMITE *Line

Aluminum Alloy Pistons
Semi-Steel Pistons
Piston Pins
Valves
Valve Guides
Valve Stem Keys
Valve Springs
Bolts
Bolt Sets
Tie-Rod Ends
Spring Shackles
Bushings
Seal-Pack Water Pumps
Water Pump Parts
Water Pump Repair Kits
Mufflers and Pipes
Cylinder Sleeves
Wet Sleeve Assemblies

PERMITE
REPLACEMENT PARTS
PERMITE

ALUMINUM INDUSTRIES, Inc., Cincinnati, Ohio, U. S. A.

ODT'S PLANS TO KEEP 'EM ROLLING

(CONTINUED FROM PAGE 90)

tors to take better care of their equipment, the Office of Defense Transportation has sponsored the organization of a United States Truck Conservation Corps. Every truck owner in the country is asked to join the Truck Conservation Corps by signing a pledge to practise preventive maintenance—whether he is the owner of one truck or a fleet of trucks. Every mechanic and driver also is asked to sign a pledge to do everything in his power to keep the equipment which he drives or services running longer. Owners who sign the pledge are given a red, white and blue emblem to display on the right hand cab door of each of their trucks.

Merely signing these pledges, however, will not win this battle of trucks on the maintenance front. Preventive maintenance, as the name implies, must be practiced on a continuing basis—week in, week out, month in, month out. As many fleet operators know, scientific maintenance is good business in any time. It is imperative that it be practised now and as long as this war lasts.

These are the broad outlines of what the Office of Defense Transportation is doing to keep 'em rolling. Any operator who thinks that the ODT truck conservation programs were instituted merely for the "record" is barking up the wrong tree. This is war. There is a serious shortage of rubber. Every plant that formerly built trucks for civilian use is now going full tilt on war production. At the same time, there is greater need now for trucks than ever before. Any truck operator who refuses to be guided by these facts and who fails to do everything in his power to safeguard the potential mileage of every vehicle he owns through the elimination of unnecessary or wasteful operations and better maintenance is a slacker. That's a strong word. I hope it will be taken as such.

END

(Please resume your reading on P. 28)

Bob and Dewey Rutlidge help build the FULLER Transmissions that are going into America's military vehicles. They are not engineers—not designers—just two of the many splendid FULLER employees. Hitler would say they are just a couple of working men.

So they are, Adolph. But not the kind of working men you know. You think Americans are soft? You should feel these boys' muscles. You think Americans can be herded like your ignorant Nazis? You should try ordering these boys around. You think Americans won't work to keep you from dictating to us? You should see these boys working 12 or 14 hours hours a day, turning out equipment to beat you!

Bob and Dewey started working here about the same time, 14 years ago. Bob, the one with the cap, is service repair foreman now. His brother, Dewey, is final inspector. Both of them know every nut, gear, and bearing in a transmission. When they O.K. a unit, it's ready for service!

Just a couple of workmen, you say, Mr. Hitler? That's right! Just two out of millions like them that we have over here. Just two good reasons why you and your goose-stepping Nazis never can win!

FULLER MFG. CO. Kalamazoo, Mich.

GAS SAVING SUGGESTIONS

(CONTINUED FROM PAGE 46)

will decrease internal friction in the engine. Oil consumption may be slightly increased through this practice, but is offset by the saving in fuel.

Temperature Control

Modern truck engines should be operated with the cooling water at a temperature between 160 deg. F. and 180 deg. F. Low engine temperatures should be avoided during cold weather. There are several ways to do this and all of them have merit. Automatic or manually-controlled shutters may be installed. Higher temperature-opening thermostats are available for many engines. Radiator covers may be bought or made.

Gear Ratio

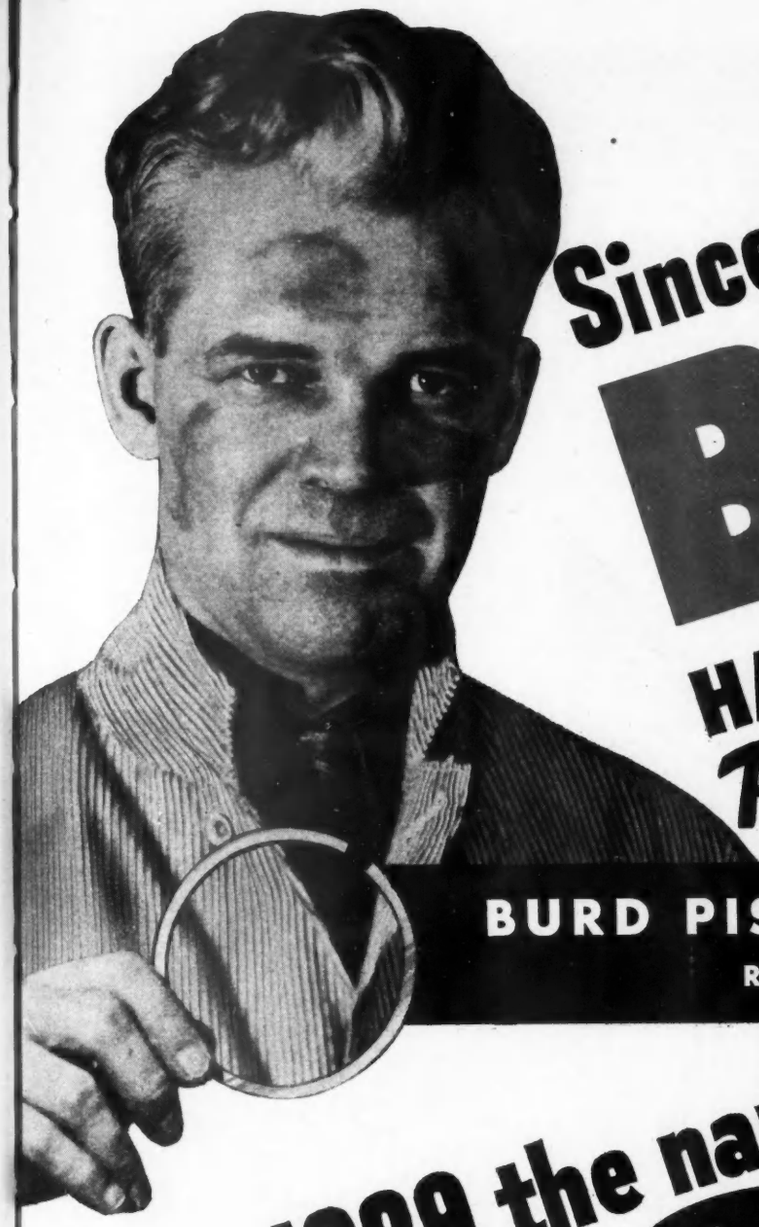
If there are some trucks in the fleet badly adapted to the work they are doing, it may be possible to economize by changing the gear ratio in the final drive. For most work this would slow up the truck, but it would save gasoline.

Tires

Under-inflated tires will increase gasoline consumption as well as increase tire wear. Tire inflation should be checked on a set schedule as a part of any gasoline conservation program.

END

(Please resume your reading on P. 47)



Since 1914 the name

BURD

HAS MEANT *Quality Piston Rings!*

BURD PISTON RING COMPANY
ROCKFORD, ILLINOIS

Since 1929 the name

hot water

HāDees

HAS MEANT *Hotter, Safer* CAR HEATING

IBERTY FOUNDRIES CO.
ROCKFORD, ILLINOIS

SUPER MAINTENANCE DEMANDED for DURATION

(CONTINUED FROM PAGE 30)

service materials. They direct attention to all the weak points in vehicle design and provide evidence of necessity for changes in faulty mechanical procedure. They condemn immediately all shoddy materials and workmanship, and show conclusively, the use of superior types to be economical.

If it could be said that the possession of such procedures was the guarantee of the success of all maintenance plans a large majority of our transport fleets would be assured of well conditioned vehicles in a state to conserve rubber, gasoline and replacement materials. Unfortunately, the scheme is only the recipe, the ingredients are unceasing vigilance, punctuality, accuracy, and hard labor, under anything but the cleanest of working conditions. These details of maintenance often receive too little of the fleet executive's attention.

Conservation of Parts

Conservation of worn materials by a process known and practiced by large fleet operators for years is one of inestimable value at this time of shortages in important materials. Building up worn areas by approved methods rather than scrapping whole units because of such wear at a time when there is little chance of getting new materials is of definite value. We may turn to Britain as an example of what can be done along conservation lines. Britain has had four years of war, but most of her trucks and buses are still running. Despite far less ample supplies of spare parts than operators had at their command in this country when the United States entered the war, and, despite the fact that many vehicles and stores of spare parts were destroyed in air raids, Britain has kept her highway transport facilities in operation. Methods for rebuilding worn parts under conditions applicable to our own country in the present state of availability of materials and equipment may be listed as follows:

1. Axle shafts splines may be filled in with welding, and new splines milled in a position that leaves the driving face in the foundation metal. Worn splines may be plated and new keyways cut in a number of new positions when old keyways become badly worn.

2. Cylinder heads and cylinder blocks may be salvaged and leaks stopped by welding, cold welding, and in some cases, metal coating. Crankcases may be successfully welded and valve seats built up by welding, and the addition of stellite on the valve seat face.

3. Clutch contact faces of flywheels may be repaired by welding and even hard-surfacing. Heavy wear areas of toggle levers, and transmission shifter forks may be built up with hard surfacing materials.

4. Crankshafts can be built up with metal coating and metal plating which allows maintaining standard size of both main and connecting rod bearings.

5. Stellite applied to the cams of worn camshafts and ground to the proper profile are set and provide much longer life.

(TURN TO PAGE 96, PLEASE)

Valves are the HEART of your truck, tractor and other internal combustion motors.

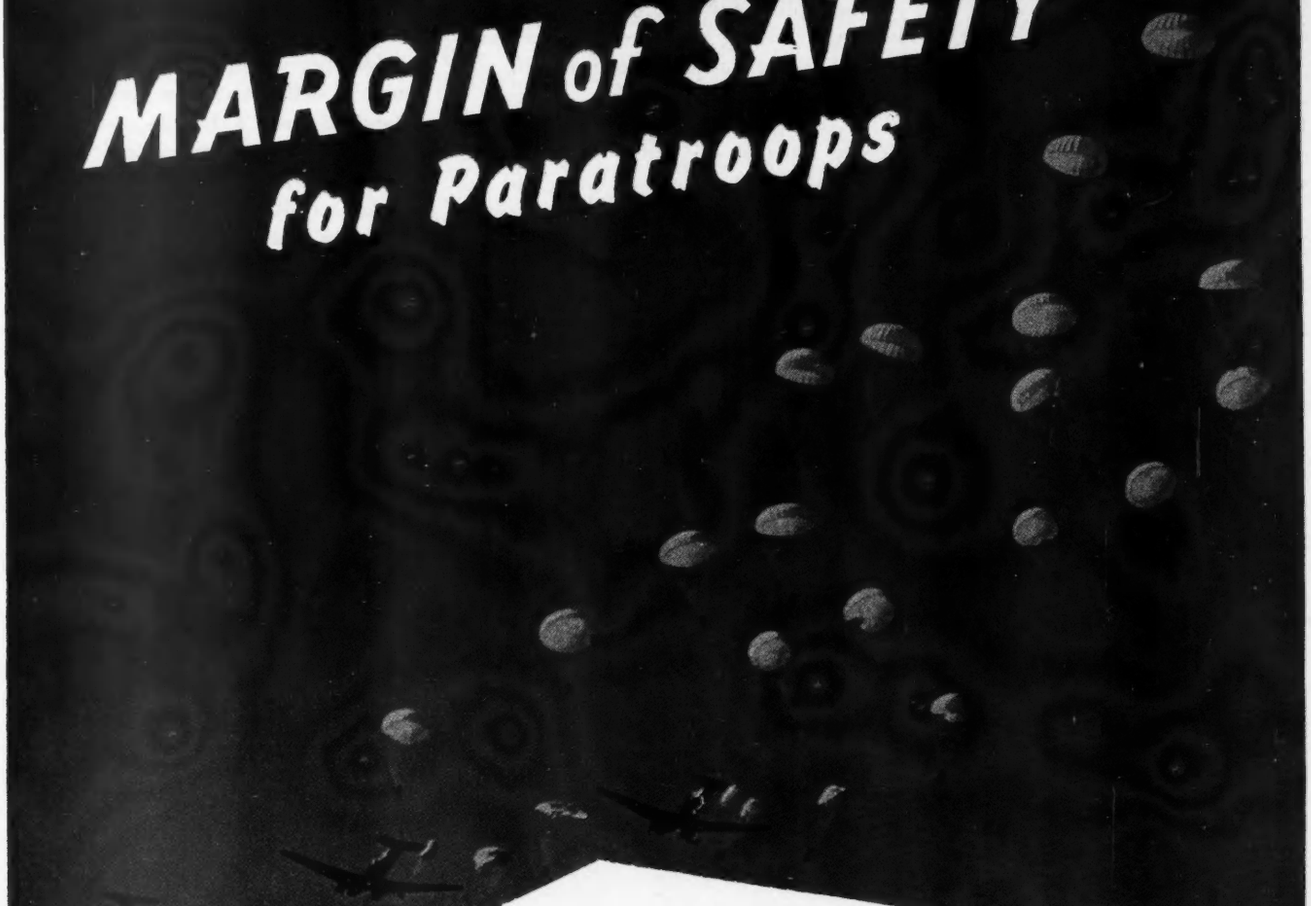
Today, in the race to achieve maximum economy and performance—with far longer periods between needed valve jobs,—your vehicles need HALL-ECCENTRIC Valve Seat Grinding.

Weak-hearted motors can't win. If you haven't HALL Valve Servicing Equipment in your shop, ask your Jobber or write the factory today for complete information.

THE HALL MANUFACTURING CO., TOLEDO, OHIO

HALL

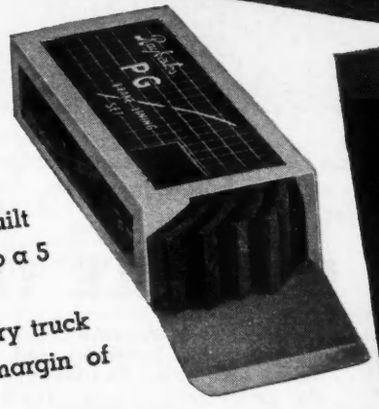
MARGIN of SAFETY for Paratroops



Floating down to the attack, the paratroops prove with their lives the margin of safety figured by the parachute specialist.

Raybestos Heavy Duty Brake Lining is also built with a margin of safety—300 per cent! It will stop a 5 ton truck carrying a 20 ton load—safely.

For today's vital transportation job, give every truck in your fleet the advantage of Raybestos' margin of safety performance.



THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.

Raybestos

AMERICA'S BIGGEST SELLING BRAKE LINING

YOUR 2 BEST FRIENDS for HIGHWAY SAFETY

Join the U.S. TRUCK CONSERVATION CORPS

BRAKE LINING, CLUTCH FACINGS, FAN BELTS, HOSE • FOR CARS, TRUCKS, BUSES, TRACTORS • ON THE WAR AND CIVILIAN FRONTS

SUPER MAINTENANCE DEMANDED for DURATION

(CONTINUED FROM PAGE 94)

6. Metal coating is successful on the worn areas of axle housing tubes, spring pads may be built up by electric welding.

7. Worn ring grooves and pistons may be turned for oversize width piston rings. Worn or broken ring lands in pistons may be welded solid and returned. Tin plating can be used to build up cast iron piston skirts. Badly worn piston holes may be bored out and fitted with bushings, and in some cases, pins oversized by plating. Metal coating on some pins is successful.

8. Spring leaves, broken close to the spring eye, may be used for shorter leaves. Spring pins may be plated and even welded and refinished. Spring pins may be ground down and fitted to undersized bushings.

9. Large valves in some cases may be reduced in size and length to fit other valve conditions. Plating is successful on valve stems in cases of slight wear: Valve guides may be welded or refinished. Valve faces may be stellite to return them to their standard size. Valve tappets may receive similar treatment and plating is successful on both tappets and rocker-on shafts.

10. In cases where bearings have badly worn wheels, both metal coating and welding are effective in building up such areas.

In this most critical period in our history, it is well to consider now what the fleet operators may do to conserve every possible part and unit of the vehicle.

Safety Remains Important

The present emergency reemphasizes the importance of a nationally coordinated safety program.

Despite the fact that most of the emphasis has been placed upon the conservation of precious materials, effort directed along these lines cannot be separated from a safety program.

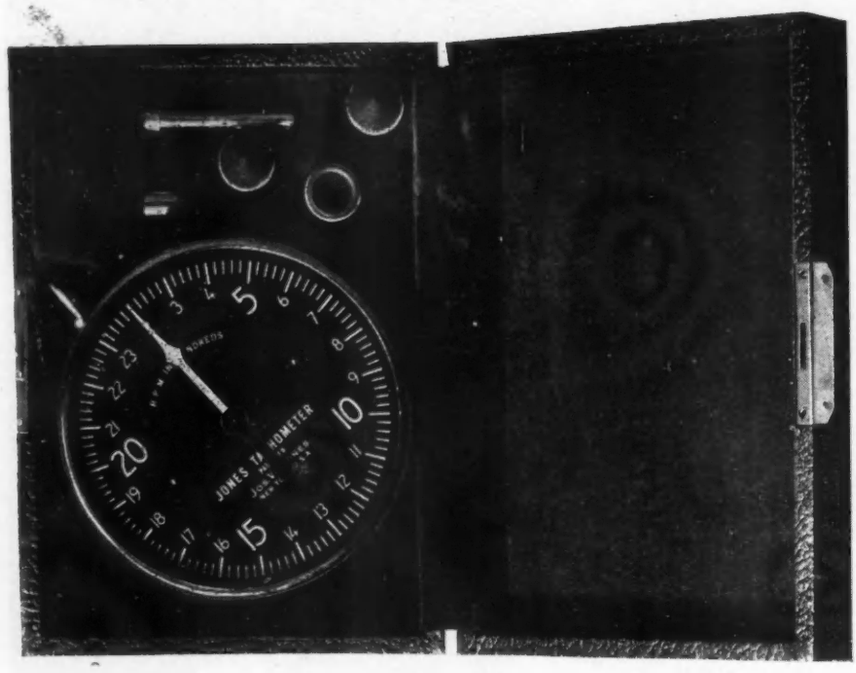
If we disregard for the moment the value of human life, which is a precious thing in itself, we are still faced with the inescapable conclusion it is difficult to kill anyone in a highway accident without rendering many pounds of precious metal and rubber useless. Probably the only exception to this is the pedestrian accident.

Still disregarding the humane side and the value of human life as such, we find we cannot afford to kill or disable the war worker, even if we do it without smashing up the vehicle, because we cannot afford to lose the war worker who is invaluable in the successful prosecution of the war which makes him or her a precious commodity.

On the more material side, there was a time when we could breathe a sigh of relief if one of our vehicles had been involved in an accident, as soon as we learned that no one had been hurt or killed. It hurts one's pocketbook, but financial injury was relatively minor when compared to physical injury or a fatality.

Now we can no longer view the material damage with complacence. In a total war every vehicle that runs is part of war transportation or

(TURN TO PAGE 99, PLEASE)



Today's fast war tempo demands that the country's trucks, so vital to war production, be kept rolling. There is now no time for leisurely repairs and adjustments.

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Used by:
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Standard Oil Co. of La.
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makes it possible to take accurate engine readings instantly either from the end of the crankshaft, or by means of a short flexible shaft held against the end of the generator or other revolving shaft. Without the use of a stop-watch or other mechanism it instantly shows the r.p.m. of the engine thus making it possible to adjust governors and carburetors, and to do other trouble-shooting — eliminating the necessity of road tests.

It is portable; saves time; makes inspections quickly and inexpensively. Speed ranges are available as follows:

100-1,200	500-2,500	350-4,000	1,000- 5,000
200-2,400	300-3,600	400-4,800	1,000-10,000

For scientific maintenance that will result in better performance and help to "Keep 'em rolling" use a Jones Portable Tachometer.

For complete details write today.

JONES-MOTROLA SALES CO.

432 Fairfield Avenue STAMFORD, CONN.

SUPER MAINTENANCE DEMANDED for DURATION

(CONTINUED FROM PAGE 96)

sooner or later it will not be running. With a scarcity of materials it is not a question of whether or not we can pay for replacements—it is a question of whether or not they are available.

If they are not, the vehicle cannot run and the beginning of a breakdown has set in. If we have serious breakdowns in our transportation system, it may not cost the few lives that are ordinarily lost in a single severe highway accident, it may cost the lives of a whole company of men at the front because they were not supplied with the implements of war necessary to protect themselves to the greatest degree possible.

A breakdown in the transportation system of a country at war may easily cost that country the war.

Thus we come back to our starting point. Efficiency of operation cannot be improved without improving the safety of operation.

END

(Please resume your reading on P. 32)

THE WAR AND THE FUTURE

(CONTINUED FROM PAGE 32)

Even those difficulties and hardships which motor carriers now are experiencing will stand them in good stead. The emergency has forced carriers to work together more closely, and the industry is becoming better organized and better coordinated. Carriers are learning to take better care of their equipment and tires, and to get the most out of a gallon of gasoline. They are learning the true meaning of conservation and preventive maintenance, and discovering perhaps for the first time the great amount of waste that has been permitted in the past.

Service Will Be Better

Then, there is the matter of trade barriers. The war has thrown the spotlight on these man-made obstacles to efficient and economical movement of freight over the highways. Many of them have been removed and trend is definitely favorable.

All these things will help make truck service better—faster, more flexible, more economical, broader in scope—better in the sense that it will be more valuable to more shippers.

In the meantime, competing transportation agencies are making advances too, and becoming more formidable. Motor carriers can not afford to be satisfied merely to keep pace with their competitors, but must make every effort to forge ahead. For the signs indicate that the post-war period will be a time of keen competition in the transportation field.

This view is shared by many outstanding transportation specialists, including Professors Grover C. Dillman of Michigan Tech, Harry E. Stocker of New York University, and John S. Worley of the University of Michigan, who collaborated in writing a booklet on transportation which was published recently by the National Highway Users Conference. Looking ahead to the post-war peri-

(TURN TO PAGE 100, PLEASE)

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APPROVED
QUALITY Coils
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NIEHOFF
TAKE OFF with NIEHOFF TODAY
"THROW YOUR SCRAP INTO THE FIGHT"

THE WAR AND THE FUTURE

(CONTINUED FROM PAGE 99)

od. they stated: "Following this war we will revert to our former condition in which we will find ourselves with an over-abundance of transportation facilities."

The facts certainly seem to support their prediction. The surplus of transportation facilities in the years prior to this war and the competitive struggle created by this condition are of too recent memory to require discussion. In the aggregate, the facilities in existence today far exceed the facilities of those pre-war years.

Rail, Water and Air Rivals

The railroad plant is growing steadily. There are 100,000 more rail freight cars today than there were in 1939. The average capacity of these cars has increased from 49.5 tons to 50.5 tons. Of added significance is the fact that, at the same time, the number of locomotives in service decreased—modern electric and diesel engines, capable of doing more work per unit, are replacing outdated steam wagons. And the railroads are taking more cars and more locomotives as fast as they can get them!

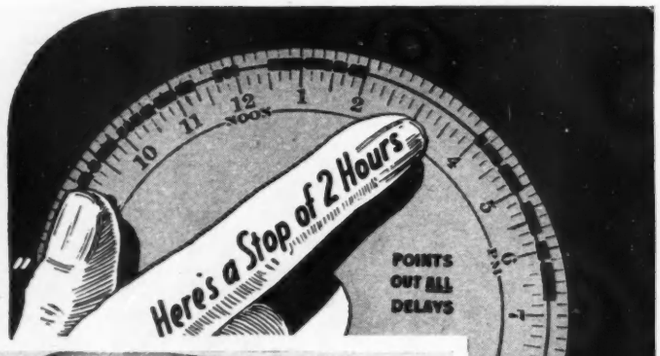
The water carrier industry, another formidable competitor whose pre-war volume of freight was approximately double that of the trucking industry, has been curtailed substantially by the war and much of the traffic it formerly handled now is moving overland. But when the war is over, domestic water carriers can be expected to come back into the picture. They will be out to get back all the freight they have been forced to give up, and a good deal more if they can.

They will have plenty of ships at their disposal. It is common knowledge that this country's merchant marine was sadly neglected between the close of the last war and 1936. In 1936, when the war clouds first began to gather over Europe, the U. S. Maritime Commission was created and charged with building 50 ships a year for ten years. In 1939, following outbreak of war, the schedule was stepped up to 100 ships; in 1940, to 200 ships; in 1941, to 400 ships, and in 1942, to 750 ships a year. Next year's schedule contemplates 1500 ships — approximately four ships every day. And we have the word of Admiral Emory S. Land, Chairman of the Maritime Commission, that the merchant marine of the United States will not be neglected again, and that after the war we will maintain a fleet worthy of the greatest nation in the world.

A new competitor, air cargo, will begin to come into its own following the war. In the past, the two chief factors which have retarded its development have been the limited number of planes available for commercial purposes and high tariff rates. Both of these conditions are temporary in nature. When peace comes, the nation's tremendous plane-producing capacity will be thrown wide open for commercial production, and aircraft engineers and designers will turn their abilities and technical advances to development of commercial planes. These planes will have much greater pay-

(TURN TO PAGE 102, PLEASE)

"LET NO TRUCK WASTE TIME Now!"



Here's the First Easy Step in Keeping a Truck BUSY

HOW TO PREVENT Costly Delays

WHEN TRUCKS ARE VITAL TO NATIONAL DEFENSE

Do the Obvious Thing:

Put on Servis Recorders

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• In times of peace this little instrument saved millions of dollars for truck owners.

Now the emphasis is on TIME, and the money saved is merely a by-product.

Trucks Are Getting Scarce!

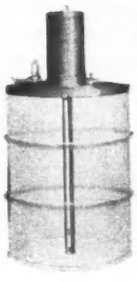
All right. If you can do 6 trucks' work with only 5, then you have given an extra truck to your country. You can do it!

Send for free booklet: *"Ten Ways of Getting More Work Out of Motor Trucks."* THE SERVICE RECORDER CO., 1375 Euclid Avenue, Cleveland, Ohio.

The Servis Recorder

Shows Busy and Idle Time...All Day

ALEMITE'S NATION-WIDE SYSTEM OF THOROUGHLY SKILLED SERVICE JOBBERS MEANS IMMEDIATE ACTION ON YOUR CALL!



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. . . comprise a complete range of heavy-duty pumps available for high or low pressures. Handle heavy greases direct from original drums; ample capacity to serve several outlets.

ALEMITE MODEL 6528 40-LB. PNEUMATIC GUN

. . . operates on 90 to 150 lbs. air; handles heavy fibrous grease at 33 times air pressure used; exclusive helix arm and worm assures positive prime; no air pockets.

ALEMITE MODEL 6184 25-LB. PNEUMATIC GUN

. . . delivers 12 oz. light-bodied lubricant per minute on 100 lbs. air pressure; nitralloy high pressure piston and cylinder; easily portable.

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WITH TRUCK FLEETS delivering as they have never delivered before, your Alemite Lubrication Equipment is naturally called on for extra performance, too. And because your Alemite Pumps are machines, they require service—as any other hard-working machines do. And such service, when needed, is usually needed in a terrific hurry.

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ALEMITE HELPS THE WORLD GO 'ROUND

THE WAR AND THE FUTURE

(CONTINUED FROM PAGE 100)

load capacity, which, along with other factors, will result in lowering of operation costs. The Army's giant Douglas B-19, weighing about 85 tons and having a useful capacity of more than 40 tons, compares favorably with the average freight boxcar.

There are some visionaries, including practical manufacturing men whose views cannot be ignored, who predict that huge cargo carrying planes, pulling several large gliders, will completely revolutionize freight transportation in the post-war period. They believe thousands of freight-plane trains will be carrying millions of pounds of freight to every point where airport facilities are available.

Trucks Complement Air Cargo

It might be added, parenthetically, that the place of trucks in what now appears a fantastic scheme of the air cargo enthusiasts should be assured because of the flexibility of motor transport. Aside from acting as consolidating and distributing agencies for air trains, they will continue to serve the thousands of communities not now served by rail and which in the future are likely to be neglected by the giant cargo planes that will pass overhead. While the prospect of air cargo appears more threatening to the railroads than the trucking industry, it is well for motor carriers to give thought to the technological developments of the day and to fit their operations into the pattern of the future. Some carriers already are doing this and are laying their plans so they will be an integral part of the transportation of the future.

There appears to be little room for doubt that many of the old pre-war transportation problems will be back to plague us when the war has ended and things begin to regain a semblance of normalcy. These problems stem from a surplus of transportation facilities, a condition where the supply is greater than the demand. If, as the signs indicate, the post-war transportation plant is going to be the biggest and most efficient in our history, will there be enough business to go around?

Here again, in seeking an answer, we must rely upon trends of the past and present. The volume of freight available for transportation is closely related to the volume of industrial production. When production goes up, freight volume goes up with it, and when production drops, transportation agencies feel the pinch. The ups and downs of production in the past have been remarkably parallel to the lines showing the trends in freight movement by railroads and motor carriers.

Motor carriers will remember 1937 as a pretty good year. Production in 1937 was good too, reaching an index figure of 110, the highest in any year since 1919 with the single exception of 1929, when the index stood at 119. Motor carriers also will recall that 1938 was a poor year. In 1938, the index for production dropped to 86. The trucking business picked up substantially in 1939, when the production index climbed to 108. Last year the production index soared to 156, and neither the railroads nor the trucking industry was

(TURN TO PAGE 104, PLEASE)

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IN FUEL CHECKING
and
YOU'LL PUT DOLLARS
IN YOUR POCKET!
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DELIVERIES WITH THE
XACTO PRINTING PUMP
THE PUMP ESPECIALLY
BUILT FOR FLEET OPERATORS
Here's a pump you can't fool! Installed in the garage or at refueling stops it prints a ticket that shows where every gallon goes. It simplifies record keeping—records every delivery—and protects profits!
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To check the efficiency of fuels or drivers, vehicles, overhauls, or other factors, check fuel consumption "at the motor". It's easy with Akraflo—the meter that measures the fuel as it is consumed. Write for details.
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COMPLETE FUEL CHECKING SYSTEMS

KEEP ESSENTIAL TRANSPORTATION ROLLING Safely

by
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RELINE with CoMaX BRAKE LINING

War-time needs make it more important than ever that brakes be kept in proper condition so that essential transportation can be kept rolling *safely*. Whenever inspection discloses that the old brake lining on a truck or car is badly worn, you'll make no mistake by relining with CoMaX Brake Lining.

As manufacturer of Lockheed Hydraulic Brakes, Wagner Air Brakes and Wagner Hi-Tork Brakes, Wagner has a valuable background of experience in braking problems. This knowledge is supplemented by a never-ending study carried on in the Wagner Brake Testing Laboratory in St. Louis, and enlarged upon by handling actual service jobs in the model service departments of 25 strategically located Wagner branches. Combined, these "laboratories" make a total of 26 Wagner Proving Grounds.

Wagner is well equipped to know the type of lining a brake should have—and this knowledge is reflected in CoMaX specifications.

CoMaX is the finest in molded brake lining. It is ideal for quick, safe, smooth stops. It is long-lived, has reinforced backing, is non-compressible, uniform in texture, easy on drums, quiet and smooth in operation, and age-proof. In short, Wagner CoMaX is the answer to the demand for a dependable and high-quality brake lining. Available in rolls, sets, blocks and slabs.

Buy United States War Bonds and Stamps

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HYDRAULIC BRAKE PARTS & FLUID ... AIR BRAKES ... BRAKE LINING ... CLUTCH FACINGS

THE WAR AND THE FUTURE

(CONTINUED FROM PAGE 102)

heard to complain that they had more freight than they could handle. The production index for 1942 is running about 173, and the available transportation facilities still seem to be able to handle the job.

Competition Will Be Keen

Production almost certainly will drop after the war. It is true, of course, that the demand for many of the products which civilian consumers have been forced to forego because of the war will be heavy, provided the consumers have any money to buy. Even so, resumed production of consumer goods can hardly be expected to approach the tremendous output of our war-time factories. It seems entirely reasonable to assume that competition in the transportation industry after the war will be at least as keen as it was before the war.

The danger to the trucking industry does not come from competition, as such, but instead lies in the prospect of arbitrary restrictions and burdens. The theory behind existing federal transportation laws is not to throttle competition, but merely to maintain competition on a fair basis. There are those, however, who have other ideas about the part regulation should play in the transportation picture, and their theories are getting thorough consideration.

After several years of agitation for creation of such an agency, the Board of Investigation and Research was established by the Transportation Act of 1940 to study the transportation problems resulting from surplus facilities. The board made its first annual report to Congress recently, stating that the emergency has not eliminated the old problems, and adding:

"Rather, it has focused attention upon certain aspects of these problems, demonstrating the need for adequate capacity and flexibility in transportation and making more certain than ever the prospect of far-reaching re-adjustments in our transportation facilities."

What kind of "far-reaching re-adjustments"? The board is studying subsidy, taxes, and the economy and fitness of the various types of carriers. Will these far-reaching re-adjustments mean that the trucking industry will be handicapped like horses in a race? Will motor carriers be burdened with unjustified and crippling taxes, or be told how far they can operate and just what they can and can not haul?

Proof that these vital questions still are very much alive is found in the board's report on its activities to date and its plans for the future. That is why the trucking industry cannot afford to forget or ignore them. That is why it is so important that the industry remain well organized and prepared to fight vigorously against any steps calculated to retard its growth and development. It would be a fatal error to regard as purely academic questions of the type now being studied by the Transportation Board. The board is studying these questions under a mandate from Congress, and the board is carrying out that mandate at substantial expenditure of time and money. Therefore,

(TURN TO PAGE 107, PLEASE)

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IMMEDIATE DELIVERY

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by shutting off automatically when tank is filled

FLEET OPERATORS can NOW get "Safety-Fill" Nozzles. Prevent spilling and wasting of gasoline . . . speed up servicing by equipping your pumps with "Safety-Fill" Nozzles.

SHUTS OFF AUTOMATICALLY when gas in the tank reaches the tip of the nozzle. This eliminates overflowing and wasting gasoline.

REDUCES FIRE HAZARD — Gasoline spilled on or around a truck endangers equipment which can't be replaced. "Safety-Fills" avoid this danger.

FASTER SERVICE — Gas tank can be filled at maximum speed. This is a big time saver during rush periods.

NO PEEK! NO LISTEN! NO GUESS! Ideal for servicing at night and in noisy garages and terminals.

"Safety-Fill" Nozzles will soon pay for themselves. Fleet operators such as Borden Company, Yellow Cab, Checker Cab, A & P and N. J. Bell Telephone use "Safety-Fills." Write for FREE Bulletin and latest prices! Use convenient coupon at left.

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THE WAR AND THE FUTURE

(CONTINUED FROM PAGE 104)

the board's findings and recommendations are likely to be incorporated into legislation of one type or another.

Victory First Consideration

Today, of course, our country is confronted with more immediate and more critical problems. They are of first concern, and nothing should be allowed to interfere with their solution. The trucking industry has an important job to do, and it must fulfill its rôle in spite of the many hardships and difficulties that are being encountered. Complete victory is our chief objective, and until it has been achieved, all other considerations are secondary.

This does not mean we must or should lose sight of the secondary considerations. We must keep our sense of balance. We can go all-out for victory without precluding all thought of and planning for the future.

This message might have been devoted to the trucking industry's part in the war and the problems it is facing. But it hardly seems necessary to emphasize these things to motor carriers who themselves are fulfilling that part and facing those problems daily. There is little reason to believe that motor carriers do not fully understand their vital rôle and the urgent need for a maximum effort. On the other hand, there is extreme danger that truck operators will completely overlook other matters which, while of a secondary nature, nevertheless are of extreme importance.

Carriers Must Think and Plan

Therefore, motor carriers must think and plan, individually and collectively, for the future they are working so hard at the present time to protect. And they should bear in mind always that a good performance by the industry in the current crisis can be its best insurance against the potentially harmful effects of the problems which lie ahead in the post-war era.

The success of the industry in meeting its current war-time problems as well as those arising after the emergency depends to a great extent upon unity and cooperation. National and state organizations representing motor carriers are constantly on the alert to protect the industry's interests and promote its welfare.

War Council Needs Support

The American Trucking Associations has formed the Trucking Service War Council to coordinate all the industry's war activities and promote full and complete cooperation with the Government. In this way, ATA can carry out its important function in the war effort and still continue other phases of its work. Thus, it is able to maintain the necessary balance. ATA and its special emergency council both are carrying on work which is of vital concern to all motor carriers. Both need the cooperation and support of all truck operators.

END

(Please resume your reading on P. 34)

HERCULES *SPEEDRAULIC* HOISTS

with the exclusive "Center-Lift" principle, were designed in pre-war days, but they're doing their part *now* in winning the victory.

With the guts to handle bigger loads faster and at the full capacity of any truck chassis, Hercules *Speedraulic* hoists and dump bodies are paying dividends in longer, more dependable service on many fronts.

Read the specifications below, and write us for information regarding the hoist which fits the job you have in mind.

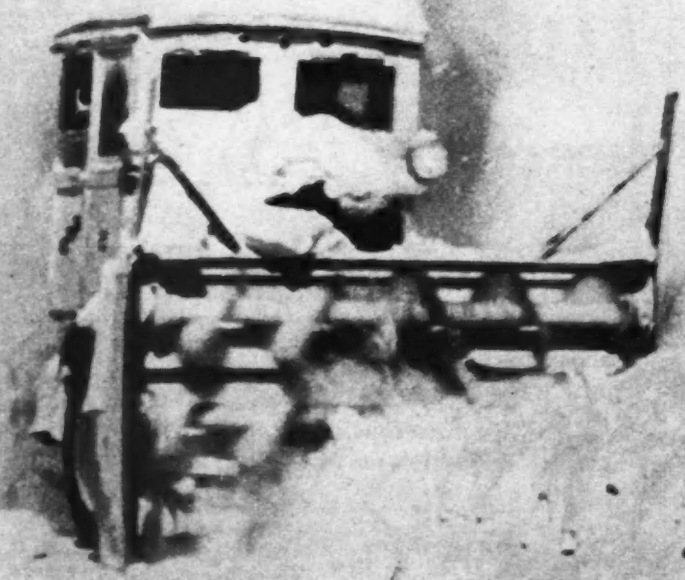
Hoist Model	Wt. Lbs.	Dia. Cyl.	Displ. Cu. In.	Length Cyl.	Length Stroke	Dia. of Piston Rod	No. of Piston Rings
6X	1130	6″	593	28″	21″	2″	4
7X	1170	7″	809	28″	21″	2″	4
8X	1200	8″	1055	28″	21″	2½″	4
10X	1450	10″	1963.5	32″	25″	3″	4

SPEEDRAULIC HERCULES HOISTS

HERCULES STEEL PRODUCTS CO.

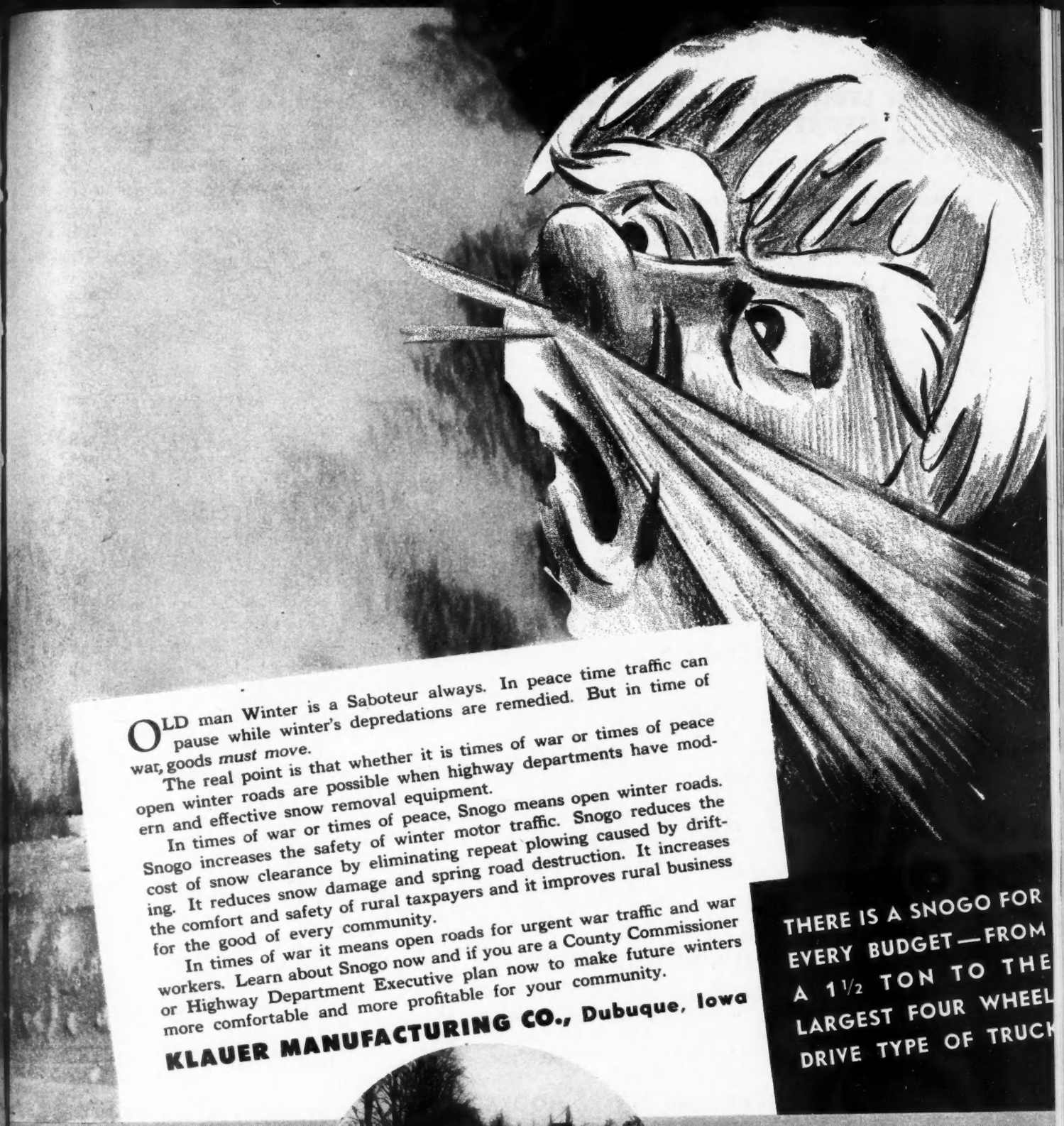
GALION, OHIO

Even in peacetime -a SABOTEUR!



Assure Delivery with Open Roads!

SNO-GO *for Complete Snow Removal*



OLD man Winter is a Saboteur always. In peace time traffic can pause while winter's depredations are remedied. But in time of war, goods *must move.*

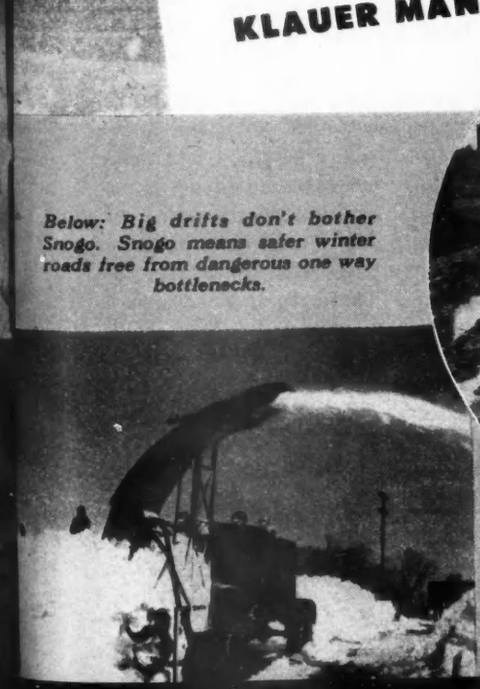
The real point is that whether it is times of war or times of peace open winter roads are possible when highway departments have modern and effective snow removal equipment.

In times of war or times of peace, Snogo means open winter roads. Snogo increases the safety of winter motor traffic. Snogo reduces the cost of snow clearance by eliminating repeat plowing caused by drifting. It reduces snow damage and spring road destruction. It increases the comfort and safety of rural taxpayers and it improves rural business for the good of every community.

In times of war it means open roads for urgent war traffic and war workers. Learn about Snogo now and if you are a County Commissioner or Highway Department Executive plan now to make future winters more comfortable and more profitable for your community.

KLAUER MANUFACTURING CO., Dubuque, Iowa

THERE IS A SNOGO FOR EVERY BUDGET—FROM A 1½ TON TO THE LARGEST FOUR WHEEL DRIVE TYPE OF TRUCK



Below: Big drifts don't bother Snogo. Snogo means safer winter roads free from dangerous one way bottlenecks.

Above: Spring road destruction will be costly to every community today. Don't let your roads become ditches. Keep your Snogo busy. Get the snow off the Road.

Below: Drifting snow means costly repeat plowing, more gasoline and road damage. Get the snow off the road with Snogo.

THE LEGISLATIVE FRONT

(CONTINUED FROM PAGE 33)

Kentucky, these changes are effective during the war emergency and will expire the first day of January of the year following adjournment of the first regular legislative session held after termination of the emergency.

Louisiana also changed truck registration fees from a net load basis to that of gross weight per load-carrying axle. Virginia changed truck registration fees from the capacity gross weight basis and extended to all for-hire carriers a tax of 2 per cent on gross receipts.

New Jersey increased the length of 2-axle units from 28 ft. to 35 ft.

A new barrier appeared this year when Mississippi imposed a tax of 6c. per gallon on all gasoline used by common, contract and private commercial motor vehicle operators on highways within the state upon which the Mississippi gasoline tax has not been paid regardless of whether a tax has been paid on this same gasoline in another state. Virginia requires motor carriers to purchase within the state motor fuel equal to the amount necessary for operation on Virginia roads or pay an equivalent amount of the tax on such fuel. Carriers are required to file reports with the State Corporation Commission periodically.

New and Old Problems

The war will bring many new problems without appreciable diminution of old ones in the 44 state legislatures that will convene next year. Without neglecting new federal highway transportation problems, highway users must open up 44 new fronts next year for the advancement of highway transportation.

Serious efforts are expected in 1943 to increase state gasoline taxes and other motor vehicle levies to compensate for reductions in highway revenues or to supplement diminishing general fund revenues. Discriminatory tax efforts of this character were overcome by the opposition of highway user groups in the special session of the Louisiana Legislature this year.

Vigilance Needed

Highway users must be constantly on guard at the state capitals next year to assure that any war-time revision of state regulations of highway transportation will promote the war enterprise and the public interest. Such discriminatory regulations as tank truck limitations and holiday bans on truck traffic must be opposed and efforts made to repeal existing restrictions of this character.

Passenger automobiles and buses have demonstrated their ability in transcontinental services. Trucks alone have been the intended victims of efforts to limit their radius of operation. State and federal proposals to circumscribe truck operations in misguided efforts to save rubber may be repeated in 1943 legislative sessions. Highway users must strip such plans of their emotional appeal and oppose any legislative or administrative effort to restrict the radius of motor vehicle operations.

(TURN TO PAGE 112, PLEASE)

HOLLAND
TRUCK and TRAILER EQUIPMENT

Helping Fleets to Stay on the Move

Holland Hitch has a responsibility beyond that of working day and night on Government orders — in addition, Holland keeps its eye on the maintenance needs of the nation's transportation vehicles. Fifth wheel, landing gear, pintle hook and other needs must be taken care of—and Holland is doing that with dispatch. Call on Holland first—you'll be sure of coming to the right source.

FULL-FLOATING SEMI-AUTOMATIC FIFTH WHEEL

Today's tough hauling has revealed the superiority of the Holland Fifth Wheel. It takes the punishment without a whimper, all because Holland has designed and built it for long life and trouble-free operation. Available in 30″—33″—36″ sizes.

LANDING GEAR AND PINTLE HOOKS

Holland's Landing Gear has what it takes for the gruelling pace of wartime demands. There's no need for you to tolerate a troublesome landing gear problem—let Holland solve it. The same goes for your Pintle Hooks. You'll find in the Holland line just what you want for that extra measure of service.

Write for detailed specifications and prices on Holland Fifth Wheels, Landing Gears and Pintle Hooks

HOLLAND HITCH COMPANY
HOLLAND Established 1910 MICHIGAN

MACMILLAN PIONEERS AGAIN!

New 1-Quart Container Without Metal for RING-FREE MOTOR OIL!

NON-REFILLABLE

HERE IT IS! The quart container for motor oil which motorists and dealers have been expecting!

And it's Macmillan who pioneers again! A "can" without metal for RING-FREE!

With the steel mills converted to war purposes, the supply of metal cans for oil has dwindled and virtually disappeared. That was natural and right.

But motorists, wanting to be sure of getting RING-FREE—in its own quickly identified quart containers—have been hoping that this difficult packaging problem would be solved.

Now the new quart is ready! Now every *independent* dealer selling RING-FREE can open this new container and put in the fill of RING-FREE every car has been thirsting to get!

Among other things, Macmillan pioneered with RING-FREE motor oil ten years ago. There never has been an oil like it. There can't be, because it's refined by an exclusive, patented process.

That's why it removes carbon, saves as high as 10 per cent on gas, reduces friction fast, saves wear and repairs and lengthens the life of your car.

Now Macmillan pioneers again—after months of search and research—bringing out a metal-less container to assure motorists of getting RING-FREE!

The Macmillan sign is shown at *independent* filling stations, garages, and car dealers. Drive in and get your fill of RING-FREE today!

MACMILLAN
RING-FREE
MOTOR OIL

35c
A QUART IN U.S.A.

MACMILLAN PETROLEUM CORPORATION
50 West 50th Street, New York
624 South Michigan Avenue, Chicago • 530 W. 6th Street, Los Angeles

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Macmillan Petroleum Corp.

THE LEGISLATIVE FRONT

(CONTINUED FROM PAGE 110)

Misguided Efforts

Despite the absolute need for conserving the tires now on motor vehicles, the fact remains that the rubber shortage finally can be solved only with an adequate program of synthetic rubber production and not by ruling motor vehicles off the highways. Yet many ill-advised proposals to immobilize or restrict motor vehicles may appear in the 1943 legislatures and many a "wolf in sheep's clothing" may be found supporting them.

War-time regulations can be used by opponents in their fight to eliminate private motor truck operations. Many for-hire trucks may find it possible to comply with involved regulations, but tire and vehicle conservation and other outgrowths of the war must not be misused to embarrass or eliminate private truck operations.

Proponents (chiefly the railroads) of the "public utility concept" which seeks to earn the government profits through taxes and interest on highway investment from higher motor vehicle taxes, are expected to be active in the 1943 legislative sessions. Highway user organizations are united in opposition to these efforts to make use of the roads more expensive.

Federal Regulation

By far the most drastic single development of the war affecting commercial motor vehicle operators is the Office of Defense Transportation General Order No. 21, placing virtually all trucks, buses, taxicabs and similar vehicles under federal control and requiring their owners to secure a federal license and make reports of vehicle operation, gasoline consumption, and similar details. Another out-growth of the rubber scarcity was the recently rescinded order of ODT to require all trucks to have at least a 75 per cent load on return trips.

Such federal controls of motor vehicle operation are supplemental to and not substitutes for state regulations. It is all important that highway users insist that these regulations be for the duration of the war only and that they be relaxed when the necessity for their imposition (generally the rubber shortage) is removed—whether that greatly desired event comes prior to or after the close of the war.

With almost daily developments in the federal regulatory field and impressive prospects of new problems to be added to old ones in the 44 state legislatures next year, it is more important than ever that highway users, through their existing organizations, coordinate their efforts in protecting their common interest and advancing the public welfare.

END

(Please resume your reading on P. 36)

KEEP 'EM ROLLING

with

BLOOD BROTHERS
UNIVERSAL JOINTS

Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

BLOOD BROTHERS MACHINE COMPANY
Division of Standard Steel Spring Company
ALLEGAN, MICHIGAN

Backed by over 30 years' Factory and Field Experience

SPECIFY
Blood Brothers
UNIVERSAL JOINTS
FOR RELIABILITY AND ENGINEERING EXCELLENCE

Goodrich Personnel Changes

A new sales district for the National Sales and Service Division of The B. F. Goodrich Co. has been established for the Pacific Coast area, with the exception of Seattle, and Donald W. Fairbairn named district manager, it is announced by G. E. Brunner, general manager of the division. Headquarters will be in Los Angeles.

VICTORY
assured by

WORK IN INDUSTRY

All forces of the United Nations must be fully armed and equipped to win the fight! A continuous flow of supplies must keep up with the advancing armies. War and industry are inseparable. War consumes tremendous quantities of materials and equipment. And industry must supply these needs. Victory in battle and Victory in industry call for a far greater cooperative effort than ever before. Industry can assure Victory through Work! Fighting Men need Working Men!

Gar Wood Industries, Inc., knows the only job now is to win the war—to keep producing more every day—to keep pace with the urgent demand for more production to insure Victory.

Gar Wood Industries, Inc., has been rendering continuous service for more than a quarter of a century—in peacetime and in wartime—and was one of the first manufacturers to convert its various plants into war production. Today all Gar Wood plants are turning out war equipment. Included among the diversified Gar Wood products are Gun Mounts, Barrage Balloon Winches, Wire Reels, Troop and Cargo Bodies, Mobile Machine Shop Bodies, Truck and Trailer Equipment, such as Dump Bodies and Hydraulic Hoists, Winches, Cranes, Derricks, Refueling Tanks and Water Tanks—Road Machinery, including Scrapers, Bulldozers, Roadbuilders, Tamping Rollers and Rippers—also Heating Equipment and fast, powerful Boats for the Army and Navy.

One of Gar Wood Industries' latest and timely contributions is the automatic, all-enclosed Load-Packer, outstanding for its conservation of men, trucks, tires and gasoline by reason of its hydraulic compressing action packing greater loads of garbage and rubbish than any other type of collection body.

Write for illustrated literature about these wartime products.

OUR ONLY JOB now IS TO

WIN THE WAR

Protect Freedom
BUY WAR BONDS

GAR WOOD INDUSTRIES, INC., Detroit

PRODUCTION AND THE PRESENT

(CONTINUED FROM PAGE 37)

nal A-3 priority rating which was issued to producers in the early stages of the priority system to meet essential needs.

Whether or not the parts supply is improved to any extent in the future, it is bound to be limited. No plentiful inventory can be anticipated for the duration. For that reason the running parts must be made to last longer.

The same is true of tires. Out of a maze of conflicting statements over a period of months, the Baruch Committee, with a frank supporting statement, has written the "rubber ticket". While the Baruch Report released strong statements as to the need for providing essential transportation with tires, it contains stronger recommendations for prolonging the life of tires and equipment now in operation.

Rationing of gasoline and tires through OPA, and inclusion of these items along with replacement parts in the ODT "Certificate of War Necessity" program will make these essentials to vehicle operation "harder to get" with every day of the war's duration.

Because of that, existing equipment will require frequent doses of Preventive Maintenance.

U.S.T.C.C. Needs Stimulus

Motor truck and parts manufacturers and fleet operators have been cooperating for several months in the U. S. Truck Conservation Corps program of the Office of Defense Transportation. This program, in principle, has been looked upon favorably throughout motor transportation circles. It needs further stimulus in the form of whole-hearted support and promotion, not only from the government agency but from the numerous foresighted individuals among suppliers and users of equipment who for years have recognized the merits of Preventive Maintenance, and have applied it in peacetime when it was not the "do it or else" it is now.

Even if the country were overstocked with tires and parts they would have little value to the war effort without the expert technical help to install them properly, when needed. The ranks of the automotive mechanics have been seriously depleted since Pearl Harbor, and dating back even to the early stages of the defense program.

With thousands of American-made and manned military vehicles in use in the far flung corners of the globe, Army requirements have dug deep into the ranks of the automotive service men. Other war industries have attracted mechanics to jobs which, in many cases, could be filled by less skilled men or even women. The draft is bound to take more to fill the quotas for the Army of the huge proportions that have been mentioned.

How to "keep 'em rolling" under these war conditions?

Draft deferments? Hardly. The pendulum is swinging in the other direction.

The answer seems to lie in the training of draft-exempt persons, youths in their late teens, older men

(TURN TO PAGE 119, PLEASE)

NOT OVER 35!

BUT HOW DO YOU INTEND TO ABIDE BY THIS NEW REGULATION . . . AND CONTROL YOUR DRIVERS . . . **UNLESS YOU INSTALL DEPENDABLE GOVERNORS WHICH AUTOMATICALLY HOLD YOUR TRUCKS, BUSES OR CARS TO THE LIMIT PRESCRIBED BY WASHINGTON?**

Take No Chances of Violating the Order

Install . . .
HOOF *full power* GOVERNORS

SAVE *tires . . . vehicles . . . engines . . . gas . . . oil*

Booklet "Everything Under Control" mailed upon request. Send for it today.

HOOF PRODUCTS COMPANY • CHICAGO, ILL.

HOOF GOVERNORS

PRODUCTION AND THE PRESENT

(CONTINUED FROM PAGE 114)

and those not physically equipped for military service.

The industry service men, with a widespread experience in the field of setting up training courses in the various Army schools, have been extending their training in the civilian field.

The feminine wearers of slacks today may don overalls tomorrow since several companies are exploring the extent to which women may replace men in automotive service operations. Mechanic training techniques will have to be revised to meet this emergency situation.

Whatever the solution may be, the critical shortage in automotive service manpower is recognized by the agency responsible for war transportation—the Office of Defense Transportation. In launching ODT's program to prevent further migration of automotive mechanics to other fields, Director Eastman says:

"Automotive transportation is absolutely essential to the winning of the war.

"Goods must reach their destinations and workers must get to their jobs—on time.

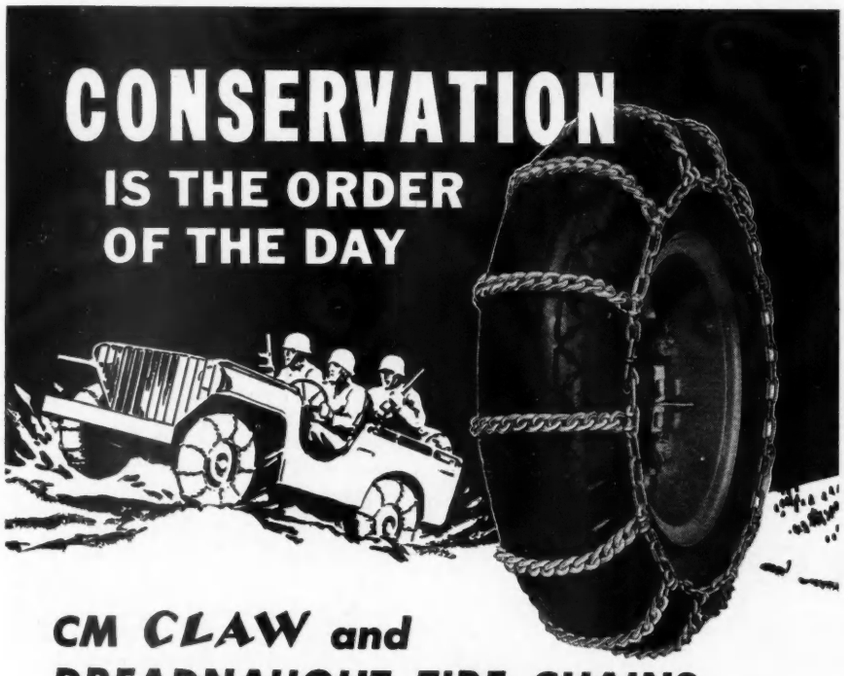
"Service men, in maintaining and conserving both vehicles and tires, are performing a most important function in the nation's war effort."

In the program, ODT properly labels the automotive service man as an "Essential Transportation Worker". In addition, to making the automotive mechanic conscious of the essential nature of his vocation, ODT with the cooperation of the industry, aims the program at potential trainees.

The sum and substance of the facts is that the automotive maintenance fraternity has the job of "keeping 'em rolling" in the midst of war time limitations. It's a challenge to resourcefulness. Take Over! And keep 'em rolling.

END

(Please resume your reading on P. 38)



CM CLAW and DREADNAUGHT TIRE CHAINS

have joined our armed forces—helping move troops and vital supplies through the sand, mud and snow —on the world's fighting fronts.

Obviously, CM truck and tire chains, though much needed "at home", will be available only in a limited supply. It is an essential part of everyone's war effort to make this supply last longer. Thoughtfulness and care will do it.

Repair last year's chains... put them on correctly... clean and dry after use... observe speed limits. This is *conservation* and calls for but little effort.

The reward is knowing that *you* and everyone else then have the advantages of safe winter driving, the assured transportation of our nation's workers, foodstuffs and war supplies. Even more gratifying is the knowledge that you are saving the sinews of war equipment production—*steel.*

We know that you are with us in our all out effort to first take care of "Our Boys."

INVEST REGULARLY IN VICTORY—BUY WAR BONDS AND STAMPS

COLUMBUS-McKINNON *Chain* CORPORATION

General Offices: Tonawanda, New York

PLANTS AT ST. CATHERINES, ONT., CAN. AND VEREENIGING, SO. AFRICA

REBORE AND RERING REVIEW

(CONTINUED FROM PAGE 63)

Using one strip at a time for test, the piston should slide freely with the undersize strip in place between piston and cylinder, and be tight with the oversize strip in place.

Cam Ground Pistons—Piston clearance should be determined by checking with a thickness gage, which could be a piece of shim stock material ½ in. wide, length of the cylinder barrel, and the proper thickness size as given for clearance of the cam ground piston recommendations (2) and (2a). The gage strip should be held parallel to the cylinder barrel with the piston installed with the thrust face, viz. (face at right angles to wrist pin), against the metal strip. At this point it should be possible to easily withdraw the metal strip while holding the piston in the cylinder. Thicker and thinner strips may be used to prove whether the piston is too large or too small. A strip of .0005 in. oversize, viz., over the manufacturer's recommended clearance should be tight, and the strip .0005 in. under the manufacturer's recommended clearance should be easily removed.

Oil Control

Oil Drain Holes—Care should be taken to see that all oil holes are perfectly clean before assembly.

(TURN TO PAGE 120, PLEASE)

REBORE AND RERING REVIEW

(CONTINUED FROM PAGE 119)

In the event that trouble is experienced with excessive oil consumption the following practice is proving effective for oil control in many well-managed fleet shops:

A chamfer is cut around the piston at the bottom of the oil ring land (oil ring located above piston pin only) about ⅛ of an inch wide, and at an angle of 45 deg. to 60 deg. Drill eight holes 3/32 in. diameter perpendicular to the chamfer equally spaced around the circumference of the chamfer. In the case of some T-slot pistons the chamfer will enter the T-slot eliminating the necessity of drilling holes in that area.

Installation of Rings

Check each ring for proper end clearance by inserting in the cylinder barrel. In order to be sure ring is square with the cylinder it is recommended that the piston be pushed against the ring while in the cylinder. End clearances measured with thickness gage should be:

.004 to .005 in. per inch bore for the top ring.

.003 in. per inch bore for the other rings.

Where ring and clearance is less than that recommended, the gap can be increased by filling the ends of the ring until the proper clearance is obtained. Care should be taken to file the gap square and true.

Rings must be checked for side clearance in the piston slots to dimensions recommended by the engine manufacturer. Side clearance of piston rings in grooves should be determined by actual test with thickness gages. The top compression ring, being subjected to more heat and higher pressures than other rings on the piston, requires more clearances than the other rings. This ring on the average automotive engine requires a side clearance of .0015 in. A thickness gage of this size should slide freely between one side of the ring and the ring land. The other rings on the average automotive engine are given .001 in. side clearance. As thickness gages of .001 in. are not generally obtainable, all other rings must be checked so that when installed on the piston they will fall freely in the ring grooves. When making this test hold the piston in a horizontal position and note whether the ring drops down freely when raised up from the under side and released. Rings that do not pass these requirements should be removed to determine whether the fault lies in the ring itself or in the ring groove. Possible causes of sticking are—overwidth rings, twisted rings, underwidth ring grooves, or in the case of used pistons—distorted ring lands, or improperly cleaned ring grooves.

Finally all the rings must be checked again on the piston to be sure that they are free and when pushed all the way in the ring slot, will not extend beyond the piston slot lands. Failure to check these two items may cause a tight job resulting eventually in cylinder scoring.

It is also recommended before inserting the pistons with rings installed in the cylinder barrels, that the rings be turned by hand so that all gaps are on the pin-hole side, alternate rings spaced 180 deg. or one-half turn from the ring above or below.

Introduction of engine lubricating oil to the piston and rings will assist installation in the cylinders, and provide initial lubrication when the job is completed and ready for operation. Extreme care must be exercised to prevent ring breakage when installing pistons in cylinder barrels. The use of a ring compressor is recommended.

Cutting Down Pistons

The prevailing practice in the automotive replacement parts industry is, and for many years has been, to carry semi-finished pistons in stock and grind them to various oversizes as required. This practice results in a great inventory reduction. It is obvious that one set of semi-finished pistons can be machined to fit a cylinder regardless of oversize, be it .020, .030, .040, .050, .060 or even a cylinder resleeved to standard.

The policy of one large fleet operator is to carry semi-finished pistons and then grind and/or cam grind as necessary. The bores to which these pistons were fitted were always reconditioned to a standard oversize. This permitted the use of pistons in more than one cylinder block. For example, a set of .040 in. oversize pistons removed from a worn block which would be recon-

(TURN TO PAGE 122, PLEASE)

NO BRAKE OR CLUTCH JOB TOO BIG FOR THE Chicago "APEX"

TESTED AND APPROVED FOR U. S. ARMY AND NAVY USE

THIS big, husky, rugged rivet setting machine fills the bill for truck fleet operators. Actually, it's a complete brake relining and clutch refacing department in itself. Every stage of the work; delining, drilling, countersinking, riveting, straightening and grinding is performed without the operator leaving the machine. Equipped with every known labor-saving feature. Handles any size job . . . passenger car, truck, bus, army transport and airplane brakes using tubular rivets . . . in less time and with less effort than any other foot power machine made.

QUICK DELIVERY

APEX WORLD'S FINEST FOOT POWER RIVETING MACHINE
RELINES BRAKES—REFACES CLUTCHES WITH ORIGINAL FACTORY ACCURACY

★ SET BACK DELINER . . . Full vision clearance. Motionless, adjustable knockout punch. Built-in old rivet collector.
★ LOW HEAD . . . Specially designed to facilitate work even on small diameter bands.
★ ADJUSTABLE ANVIL . . . Quickly set for any length rivet.
★ DEEP THROAT . . . For easy working.
★ SHOE STRAIGHTENERS . . . Built in.
★ DRILLING UNIT . . . Two-speed, V-belt drive, no hand pressure required, foot operated.
★ GRINDING UNIT . . . Fully machined, large table, 6¼" cushioned abrasive drum.
★ CAPACITY . . . Up to ¼" diameter tubular or solid rivets.
★ POWERFUL . . . New toggle lever design.
★ QUIET . . . No noisy clatter.

WRITE FOR CATALOG DESCRIBING THE COMPLETE "CHICAGO" LINE

Chicago Rivet AND MACHINE CO.
9616 West Jackson Blvd., Bellwood, Ill.
Chicago Suburb

TRANSPORTATION MUST NOT FAIL

★ America needs more miles of service from your fleet—your trucks, busses, and other motorized equipment . . . because TRANSPORTATION MUST GO ON with least amount of shop lay-ups or parts replacements.

Vehicles with inefficient motors are useless so the first essential in your preventive maintenance program is to care for the engines for maximum life of every working part,—for conservation of oil and fuel,—and to save unnecessary man-hours of repair labor.

RISLONE Prolongs Engine Life
Frees Sticky Valves, Saves Oil and Fuel

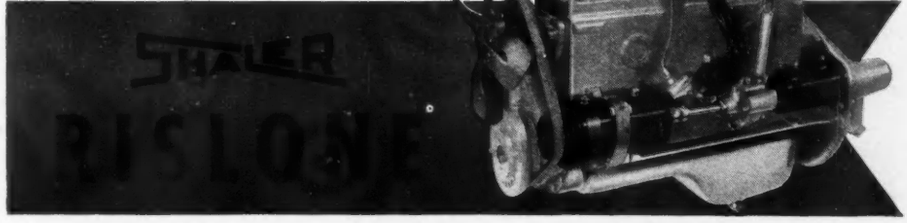
Millions of engines are developing maximum horse-power—are being kept in "peak" condition through the use of RISLONE, the oil alloy. RISLONE is a combination of chemicals designed to absorb all types of motor gums. RISLONE rids engines of power-robbing gums on valve stems, guides, piston ring grooves, and oil ring slots. RISLONE frees "sticky" valves, enabling them to seat firmly, thus restoring lost compression and power—assuring thorough adequate lubrication of all moving parts at all times for longer life—and conserving fuel and oil.

RISLONE's high capillary attraction facilitates the "break-in" of new and reconditioned engines and keeps the regular oil free flowing at all times to insure easy quick starting even in sub-zero weather.

The consistent use of RISLONE right in the crankcase with the regular oil assures a quieter, smoother running engine. Service work and replacement part costs are reduced, leaving your help free to do other essential production work. Recommended and used by engine builders and car factory engineers.

Made by the makers of World-famous "Hot Patches," the safest tube repairs known—THE SHALER COMPANY, Waupun, Wis., and Toronto, Canada.

RISLONE is available in five, fifteen, thirty and fifty gallon faucet ed drums for shop use—Lithographed packages for the motorist.



REBORE AND RERING REVIEW

(CONTINUED FROM PAGE 120)

ditioned to .060 in. oversize, could be used in a worn block reconditioned to .040 in. oversize. On the other hand if worn, these pistons could be ground down to be used in any block of smaller bore. In order to carry out this procedure it is occasionally necessary to widen the top ring groove to take the next width of piston ring, due to slight wear of the groove, making it too loose a fit for a standard width ring.

For shops doing engine reconditioning and for fleets where the engines are predominantly one make, the accepted practice is to carry .020 in., .040 in. and .060 in. oversize pistons in stock. The reason for doing this is that the first time the motor is torn down the block is bored and honed to .020 in. oversize refitted with .020 in. oversize pistons and rings. Later on the same block is usually bored and honed to .040 in. oversize and refitted with .040 in. oversize pistons and rings. This procedure is carried on up to and including .060 in. oversize.

The general practice in reboring is to limit this work to .060 in. oversize although exceptional jobs have been reported done to go up to 0.100 in. or above oversize where cylinder wall thickness is known to be sufficient.

Surface Treatment

Surface treatment of finished pistons is advisable for both aluminum and cast-iron pistons. As most piston and ring scuffing takes place during the "break-in" period in a newly reconditioned engine, surface treatment can do much to alleviate this trouble. Aluminum as well as cast iron pistons should be finished to regular clearances and then electro tin plated.

When trying a tin plated piston in a reconditioned cylinder, it is advisable to oil the piston to facilitate sliding action against the cylinder wall.

If surface treatment of pistons is not available it is recommended that the pistons, both oversize or semi-finished, cut down to the proper size, be allowed an extra one thousandth of an inch (.001 in.) overall clearance.

Wrist Pins

In the event of piston pin wear and new pins are not available and wear is evident on wrist pin, it is recommended that pin be ground down providing grinding does not go through case hardening. Not more than .005 in. should be ground from the original diameter. Oversize bushings can be installed in the rod and piston. This practice is not recommended in clamp type rods due to their inability to close properly on an undersize wrist pin. In cases where pistons are not bushed and wear is evident in piston boss, wrist pin bushing and piston bosses should be honed out and oversize wrist pins used.

Dry Sleeves

With the early sleeves the practice was to shrink the sleeve in dry ice or liquid air and drop it into a properly machined bore. This gave reasonably satisfactory results where the coefficient of expansion of the sleeve was not greater than that of the block. With the advent of very high Brinell sleeves, with what would appear to be a higher coefficient of expansion, this procedure was not as satisfactory as might be expected. Where a plain sleeve of this type is to be used, a shoulder must be left in the bottom of the bore in order to lock the sleeve in place between its shoulder and the cylinder head gasket, and the sleeve made a perfect fit with an error of not more than .005 in. Where it is possible to install a sleeve with a shoulder at the top to register with a groove at the top of the bore, a shoulder in the bottom of the bore is not necessary.

Wet Sleeves

Where wet sleeves are used, advantage can be taken of the fact that the sleeve probably expands almost as much under heat as does the piston, to fit the piston with a smaller clearance, always provided that there is room for the wet sleeve to expand in the block.

END

(Please resume your reading on P. 64)

AVOID PLUGGED UP FUEL LINES WITH

MHS Safety Fuel Tanks

Approved by Underwriters' Laboratories, Inc.

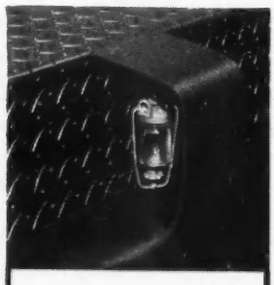
• You can avoid engine stalls and other troubles resulting from plugged fuel lines with M.H.S. Safety Fuel Tanks—they meet every requirement for safe, efficient, trouble-free operation. In addition to efficient sediment traps (illustrated and described at the right) these tanks are equipped with measuring sticks to avoid unnecessary dumping when crossing state lines—thief-proof pockets to prevent fuel thefts during rest stops—safety pressure valves that prevent explosions, and many other advantages.

M.H.S. Safety Fuel Tanks are of rigid all-welded construction and are trussed internally to withstand severe treatment without damage.

Safety and protection from fire have never been as important as now—and remember, after you're in trouble, it's too late then to equip the truck with a Safety Fuel Tank.

75—85—105 AND 125 GAL. CAPACITIES

A fully descriptive folder is yours for the asking



These Filter and Sediment Traps—one for each carburetor feed line—capable of catching all foreign material to 0.001½, prevent plugging of the fuel lines and are conveniently located to permit easy disassembly, cleaning and reassembly.

MHS Safety Fuel Tanks

DESIGNED AND MANUFACTURED BY

MECHANICAL HANDLING SYSTEMS, INC.

4650 NANCY AVE. • DETROIT, MICH.

WORLD'S LARGEST MANUFACTURER OF AUTOMOBILE TRANSPORT TRAILERS

Barrett Says:-
WE BOTH HAVE A JOB TO DO TO WIN THIS WAR!
. . . Our Job is to furnish dependable, high-quality brake service equipment to our armed forces. Drum lathes, reliners, Brake Dokters and other vital equipment are rolling down our assembly line, day and night. This war must be won, and Barrett is all-out for Victory.
. . . your Job is to deliver the goods. Trucks and Buses must be kept rolling so that men and material will move safely over the highways of our great nation. Today, because the supply of new brake service equipment is limited, we have created new life in our service department.
B-39 LATHE
B-51 RELINER
B-42 HONE
B-131 CLAMP
THE FAMOUS BARRETT BRAKE DOKTER
Hundreds of these heavy-duty Brake Dokters are now in service turning out precision brake work on Trucks and Buses.
REPAIR SERVICE
If you have a well-worn lathe, or other brake service equipment that cannot be replaced and is in need of repair, write us for a reconditioning estimate. We have enlarged our repair department and will make every effort to help you prolong the life of your present equipment.
BARRETT EQUIPMENT COMPANY
2101-2107 CASS AVE.
ST. LOUIS, MISSOURI
SHOE GAUGE
GRINDER WHEEL
LATHE CUTTERS
COUNTERSINKS AND DRILLS
SANDING SLEEVE
SHIM STOCK
WASHER
LOCK RING PLIERS

THIRTEEN TIRE CONSERVATION TIPS

(CONTINUED FROM PAGE 41)

in and attain full growth under the most favorable conditions. New tires also provide better steering and the majority of drivers like the added factor of safety.

The exact stage or time of rotation for starting the front tire to the rear varies with most operations. Common agreement seems to be to move the tires to the drive wheels while there's still a good deep tread to provide good tractive and braking qualities. If the drive wheels are duals, a plan such as shown in Fig. 10 is often employed. However, while the diagram shows that the last stage of wear on this type of operation is on the inside of the duals, care must be observed to select tires where the wear is not so great that the wheels will be mismated.

On truck trailers and other installations having dead axles, tires are usually switched to the trailing wheels as the final stage of service before recapping.

The same general procedure is being followed by most operators with respect to recaps, especially of the first capping and providing the casing is sound. Where the soundness of the casing is considered doubtful, the tires see service first on the drive wheels, then on the trailing wheels and then as spares.

Some shops report that not only do they rotate tires from the front to the back, as mentioned, but that they also turn the tires on the wheels to give then a chance to run in the opposite direction.

8. Recapping Tires

There's hardly a fleet operator in business today who does not own some recapped tires. It is no longer a matter of choice. Specific directions as to when a tire should be recapped, when a tire is considered worn beyond the stage of recapping, and other OPA recapping instructions were published in COMMERCIAL CAR JOURNAL in the August, 1942, issue. If strict adherence is not complied with, local tire rationing boards may refuse to grant certificates. Moreover, inspectors are required to report cases of abuse that render tires unfit for further service, such as:

a. Ply separation.
b. Broken or exposed bead wires.
c. Failure at bead reinforcement.
d. Separation of cord in inside ply.
e. Cuts and breaks in casing too great for repair.
f. Wear beyond ultimate point for recapping.

Certificates for recapping, as well as for new tires, will be rejected if any of the above conditions are traceable to overloading, improper inflation, improper matching of duals, mechanical faults and all other results of abuse and neglect, such as are covered by this article.

Experiences of most fleet operators indicate that it is possible to get almost as good mileage from a good recapped tire as from a new one, providing proper care is exercised in keeping the casing sound. Many fleet operators, however, prefer to confine recaps to vehicles covering the least difficult runs. In the last analysis, conditions of individual operations must be the deciding factor.

9. Repairing Tire Injuries

Inasmuch as ODT and OPA place great stress upon the prevention of tire injuries and since they play an important part in the fleet operators' ability to get replacements, the following cautions should be exercised.

a. Check tires as often as possible to catch all forms of damage.
b. Repair all breaks in casings as soon as they appear.
c. Devise a plan for driver cooperation in treating tires with care.

If a badly injured casing is vulcanized immediately, it can be made suitable for continued service without seriously impairing its original mileage possibilities. Large holes in the tread also should be filled as soon as the cause is removed. If these cautions are not observed and the tire is allowed to run on the wheel so that moisture and dirt work into the casing through the breaks, it will fail prematurely because cords may be severed and plies separated.

Certain injuries such as running on flats, scuffing, checking, etc., are definitely pre-

(TURN TO PAGE 126, PLEASE)

Wind, scientifically harnessed, drives the sailboat briskly across the water. But wind has no place in shop equipment. Cold, hard facts on performance is the only language that talks. Because Kellogg-American compressors deliver air at lower cost per cubic foot, more dependably, they have earned a place of respect in the industry. The lessons being learned today, as Kellogg-American compressors are being made in tremendous numbers under pressure of war emergency, are teaching us even more about building compressors even better.

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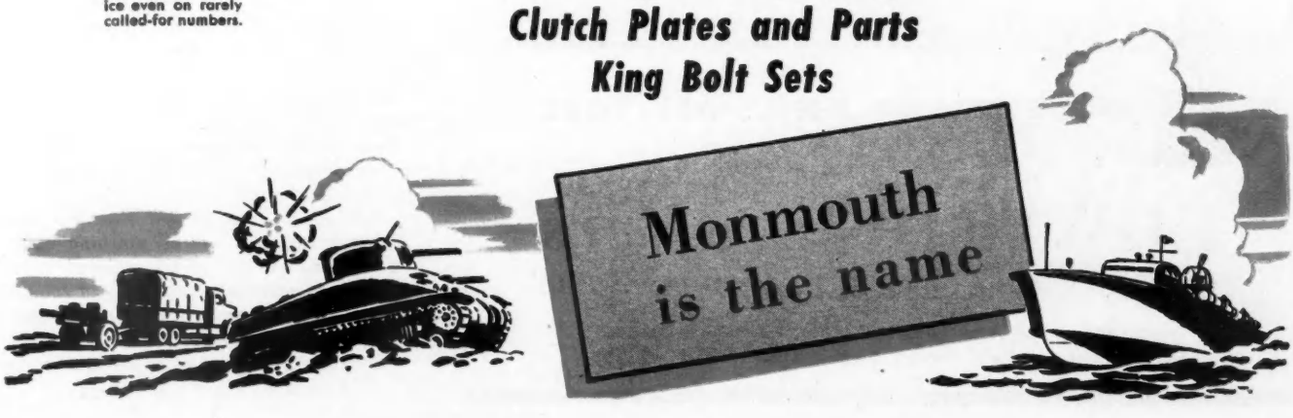

THIRTEEN TIRE CONSERVATION TIPS

(CONTINUED FROM PAGE 124)

ventable. Others such as cupping, large worn spots, excessive crown wear, etc., also are preventable by proper mechanical adjustments. That's why the OPA is so insistent that each fleet operator adopt proper inspection and repair methods.

A number of operators have taken these problems direct to the source. They have taken great pains to explain OPA's regulations to their drivers and asked for cooperation which was cheerfully given. The same procedure was adopted with respect to the shop's cooperation and improved care with respect to rotation, matching duals, balancing and all the other factors resulted.

In the past, blown-out tubes were discarded. Today new sections are being vulcanized in, if the tubes are otherwise sound.

Conservation of tires and tubes by inspections and repair should be one of the basic factors of every shop maintenance program. Not only is it a matter of patriotism, but also of economy and self-preservation.

Winning the War is all that matters. Edwards is trying to do all it can toward that end.

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PRODUCERS OF TRAILERS TO DELIVER THE GOODS... AND OTHER ITEMS UNCLE SAM NEEDS FOR VICTORY.

10. Mechanical Conditions

Tire rationing boards' inspectors report that by far too great a percentage of tire damage is caused by mechanical faults, most of which are not difficult to correct. An excessive amount of tires show wear due to unbalance, both static and dynamic, and to front-end mis-alignment. The importance of correcting these conditions is so vital to every tire conservation program that a separate article covering these points appears in this issue.

Brakes play an important part in tire wear. Too sudden stops and starts or improperly adjusted brakes will grind off large areas on a tire, especially if a day's run includes many stops.

Loose or broken U-bolts, bent axles, bent axle housings and bent or damaged chassis frames are other common causes that contribute greatly to excessive tire wear. These are indicated when the rear wheels do not line up or track with the front.

Other mechanical conditions such as bent wheels and bent rims appear high on the list of mechanical faults that destroy or prematurely wear out a tire.

Repairs and adjustments to correct these conditions should be made promptly and properly. They should be included on the weekly inspection check list.

11. Driving Conditions

The success of any conservation plan is usually based on a fleet's driving conditions, often referred to as operating conditions. These conditions include terrain, whether mountainous, rolling or flat; population density; metropolitan, suburban, urban, frequent or occasional stops, etc. One fleet will operate within one of these conditions, others will cover practically all.

It is difficult, therefore, to outline one set of conditions and set them up as ideal. However, certain factors enter into practically every operation. Driving speed, for example, is a problem common to most operations. Some of it is sustained, some intermittent but the common denominator is quick starts and stops, fast turns, beating traffic lights, etc. Correction of this practice is definitely under way. For over a year and a half a large number of fleet operators have set up a voluntary speed limit of 40 m.p.h. Strict observance has shown increased mileage, fewer road failures and better casings for recapping.

The ODT order restricting driving speed to a national 35-mile limit should have a favorable effect on tire mileage for the entire nation. It should minimize the adverse effects of that destructive combination of speed and impact.

There remain many other harmful practices which fleet operators should attack. Many drivers, because of poor judgment or carelessness, damage tires on pavement curbs. The worst effects of this practice is scuffed or even gouged sidewalls and casing breaks due to the pinching effect of the curb and rim on the sidewall. Mere rubbing against curbs can grind off enough rubber from the tires to weaken the sidewalls and cause premature failure.

Such tire wreckers as bad ruts, breaks

(TURN TO PAGE 128, PLEASE)

Successful wartime maintenance

Depends on Good Brakes

THREE specialized types of heavy-duty brake linings *plus* a free Advisory Service to determine the right type of lining for each of your trucks . . . that's American Brakeblok's offer to help with wartime maintenance.

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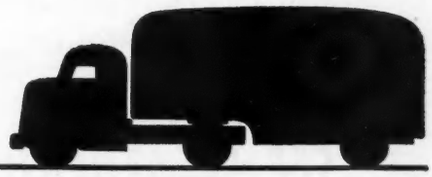

3 American Brakeblok "2000 Series" and Thick Blocks for airbrake equipment.

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BRAKE LINING

THE AMERICAN BRAKE SHOE & FOUNDRY COMPANY
AMERICAN BRAKEBLOK DIVISION, DETROIT, MICHIGAN

THIRTEEN TIRE CONSERVATION TIPS

(CONTINUED FROM PAGE 126)

in paving, railroad tracks, bad road shoulders, etc., usually can be avoided if the driver is careful and alert. Glass, large stones, cinders, loose packing case boards with nails, etc., also are large enough to see and avoid. Loose rubbish, seemingly harmless, may be loaded with tacks and glass.

Certain road conditions, such as encountered in mining, quarrying and some building operations, are very difficult to correct. However, the severity of the damaging results can be appreciably reduced by careful driving.

Intelligent, pleasant and instructive talks to drivers, either individually or at meetings, are the best remedy for correcting time wrecking due to such road conditions. Most operators have found their men to be understanding and willing to cooperate, if asked in the right way. Hell-raising doesn't always work. Let the drivers in on your tire rationing and vehicle conservation problems and watch the improvement.

12. Tire Storage

A tire conservation factor of importance equal to most of the items covered so far is the proper storage of tires, whether new or old but usable spares. Recommendations from authoritative sources and based on successful experience were published in the June, 1942, issue of COMMERCIAL CAR JOURNAL.

Of prime importance is weatherproof storage space. Rain, snow, water, oil, strong air currents, direct light, sun and excessive salt or acid fumes in the air are destructive agents in long storage. Cracks and crevices that admit even small quantities of the elements become important because they play, day after day, on the same spot and lead to deterioration of the fabric and rubber.

If there are any windows adjacent to where tires are stored, they should be painted blue because rubber, when exposed to the sun's rays, develops fine checks that run in many directions.

Cold weather also produces checks that are harmful to tires. These are similar in appearance to sun checks but are much deeper.

Ozone, one of the gases found in air, is another enemy of rubber. Its effects also show up as fine, hairline cracks. However, these cracks generally begin at two points in the exact center of the tread and are referred to by tire manufacturers as groove cracks. Cracks also appear at the point where the road surface tread ends. These are referred to as buttress cracks. When a tire is placed in service, these cracks open up to great depths and cause blow-outs and rapid tire deterioration.

Caution should be exercised in stacking tires. They should be stored flat and not on their treads. Wrapping, if not required for early use, is also an excellent added precaution worth following to prolong tire life.

The conditions outlined apply to recapped tires as well as to new or partly worn ones.

Tires left on trucks and exposed to all climatic conditions without taking any precautions for a year will have only one-fourth of natural life expectancy. If the entire vehicle is to be stored with all tires remaining on, storage procedure, given elsewhere in this issue, should be followed.

13. Records and Control

Experience has shown that every program, no matter how modest or ambitious, must have good control and supervision. Therefore, a competent individual should be placed in charge. Some fleet operators have selected the shop's foreman or superintendent, in others the company's president or general manager assumed the job to provide more authoritative control. Several cases on record show that an outside man was employed. In these cases, the men were ex-tire men who, due to war conditions, were forced out of their jobs with tire dealers.

The next step should be to plan regular inspection periods to suit the fleet's particular requirements. Suggestions such as discussed under "5. Periodic Inspection" should be adopted on a suitable schedule,

(TURN TO PAGE 130, PLEASE)

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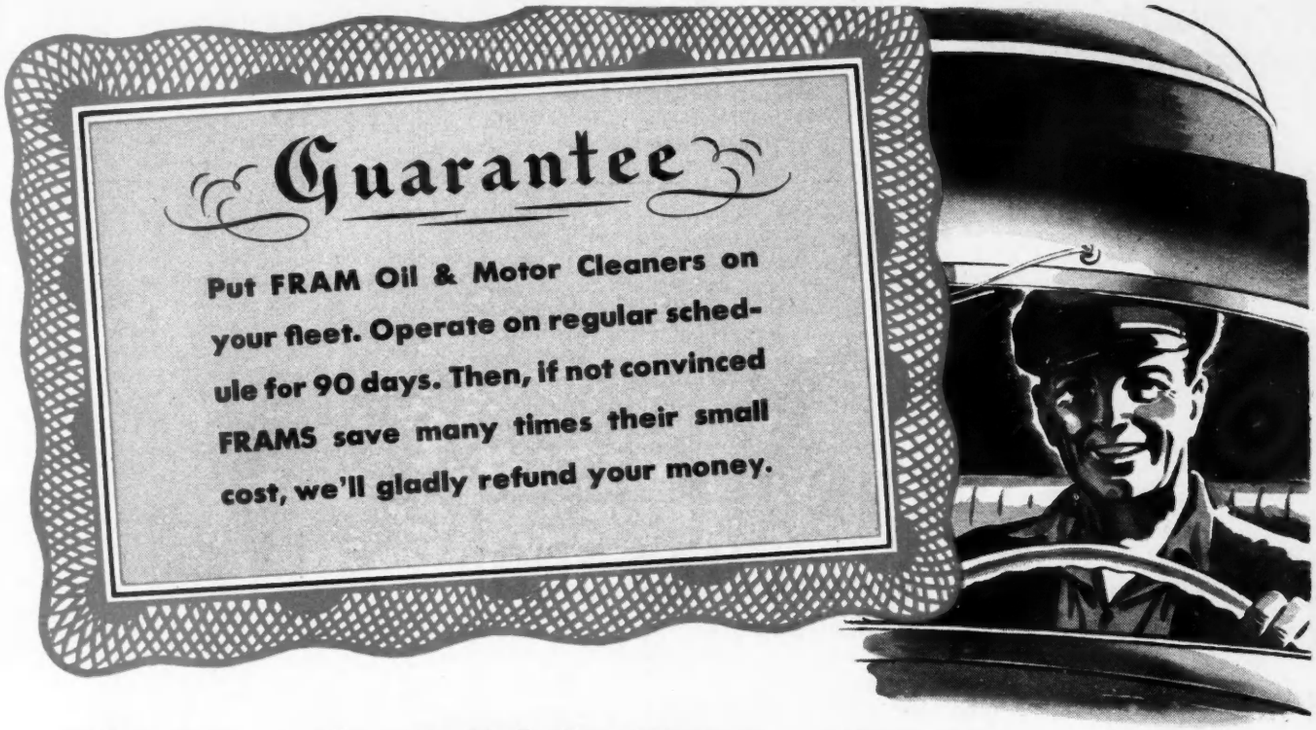
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You bet, Frams conserve motors, oil, and money—and that's not "just another advertising claim." We back every word with an iron-clad Guarantee. And fleet owners themselves back us up with RESULTS proved by shop records. "Frams cut engine wear in half," a bus operator writes. "Wear found to be 3 and 4 times more on engines *not* equipped with Frams," says a Los Angeles operator. "200,000 miles and more before reboring," a transportation company reports.

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HOW'S YOUR OIL FILTER?

THE DIP-STICK TELLS THE STORY

THIRTEEN TIRE CONSERVATION TIPS

(CONTINUED FROM PAGE 128)

which should be adhered to strictly. Regularity is just as important as the schedule itself.

The final step is the development of control forms. This, experience has proved conclusively, is the very heart of a tire conservation program. Without control forms the fleet operator proceeds blindly; never knowing exactly how he stands; never being able to put his fingers on the bad spot. Incidentally, future ODT regulations will require accurate control records to be maintained by each fleet operator.

It is possible to get by with one form, such as shown in Fig. 7, although it is much better for the success of a tire conservation program to have several forms.

One of these forms should be a tag that should be attached to a tire the moment it is removed from any vehicle. This should be in the nature of a work order tag, although it should contain other necessary information, such as the vehicle from which it has been removed, position, date, nature of damage and OFF mileage. Those important facts should not be left to any individual's memory. A specimen of such a tag, used by a successful fleet operator, is shown in Fig. 9 on page 40.

The next form should be the condensed tire service and tire change form referred to previously and shown at Fig. 7.

Finally, there should be a comprehensive vehicle and tire record to show at a glance where the fleet stands with respect to mileage, number of repairs daily, road changes, inspections, etc. Fig. 8 could be used as a pattern.

Many shops find it desirable to provide the tire program supervisor with a form to show daily tire changes, number and nature of repairs, record of mechanic making the repairs, record of when and where tires have been sent for recapping, etc. Another form used is a schedule outlining the dates or mileages when certain tires should be rotated, duals rematched, front ends checked, etc.

In the last analysis, each shop will have to set up such forms as will be found to be adequate and to provide the fleet operator with a clear picture how he stands. Too many forms can bottleneck a program, just as too few will handicap it.

END

(Please resume your reading on P. 42)

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CYCLONE *Battery* CHARGER

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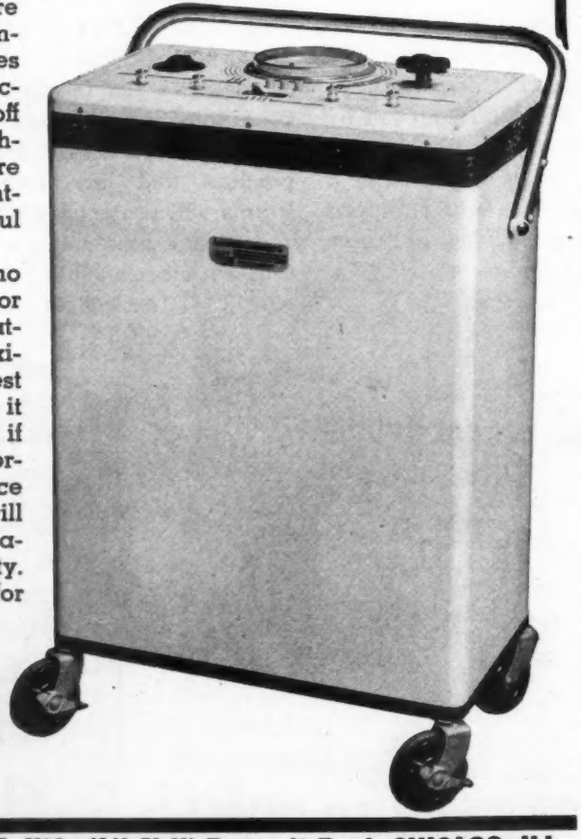

AUTOMOTIVE SERVICE WEIDENHOFF EQUIPMENT AVIATION

JOSEPH WEIDENHOFF, INC., 4340-58 W. Roosevelt Road, CHICAGO, ILL.

False Truck Rationing Application Prosecuted

The Department of Justice announced that a Federal Grand Jury sitting in Portland, Ore., has returned an indictment against the Hammond Lumber Company of Portland and San Francisco, Cal., and its general manager, Harry C. Patton, charging them with making false statements and representations to the War Production Board and the Office of Defense Transportation in connection with applications for the right to purchase and acquire 18 new commercial motor vehicles.

The indictment charges that the defendants represented to the War Production Board, its Directory of Industry Operations, and to the Office of Defense Transportation that the trucking contractors who had been hauling logs for the company had signed contracts to work on airports and cantonments and could not continue longer to haul for the company, that no other trucks were available, and that the company could not continue its logging business unless the applications were granted. The indictment alleges that such representations were false, and known to be false by the defendants; that acting in reliance upon such false statements, the War Production Board and the Office of Defense Transportation issued authorization for the purchase of new trucks and trailers.

This is the first case to be brought on the Pacific Coast involving false representations made to a war agency in connection with critical material. The case was referred to the Department of Justice for prosecution by John Lord O'Brian, general counsel of the War Production Board. The grand jury presentation was conducted by Charles S. Burdell, special assistant to the Attorney General in the Antitrust Division, and Carl C. Donaugh, United States Attorney for the District of Oregon, and the indictment was returned Oct. 7, 1942.

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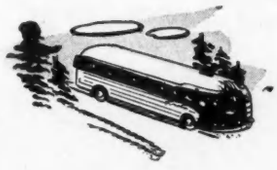

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Gemmer Steering Gear design and construction likewise soars above the field—reaches the "ceiling" in ease of steering, endurance, and power for all types of commercial, bus, military, industrial and agricultural vehicles.

Gemmer Triple Roller Tooth Steering Gears have these all-important and desirable steering factors: **EFFICIENCY**—Highest available—provides easy steering always—plenty of power for parking. **STABILITY**—Steering is firm, response positive, with absence of rubbery feeling and wander. **SAFETY**—Abundant safety factor—low internal stresses. **DURABILITY**—Endurance for the life of the vehicle. **CONVENIENCE**—Compact design for easy installation and weight saving without sacrifice of steering arm angularity or overall capacity.

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EXPANDER RINGS CONSERVE

(Editor's Note—This article is an edited version of a report entitled "The Use of Expander Type Rings to Prevent Excessive Cylinder Reconditioning" by Committee No. 5 of the S.A.E. Transportation & Maintenance Activity. The complete report was presented by the committee chairman, Paul E. Friend, Wilkening Mfg. Co., at the recent S.A.E. Transportation Meeting in New York.)

THE report of Committee No. 5 clearly demonstrates that expander type piston rings have a very definite function in the over-all maintenance picture; that their use contributes materially to high maintenance efficiency. This is real conservation, which today is attracting the attention of everyone in the transportation business, for practical as well as patriotic reasons.

The report represents the experience of fleet operators who have used expander type rings, and the experience of individuals closely connected with fleet operation, and with the application and performance of piston rings.

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STEADY driving under the new Federal 35-mile-per-hour order conserves tires, trucks and fuel . . . and can *still* keep trucks on schedule. "ZENITH GOV-U-RETOR" speed controls provide just such accurate speed control, offer the added feature of fuel-saving carburetion. These practical two-in-one units are your best bet for putting that Truck Conservation Pledge into practice. Consult your "ZENITH" Carburetor distributor or write:
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Plain, non-expander type piston rings are intended for and designed for use in straight and round cylinder bores. Such rings have essentially equal radial pressure distribution, and a radial thickness dimension usually close to the S.A.E. standards. A further characteristic of these rings is that when compressed into a cylinder, they have sufficient resilience to exert their own inherent pressure against the wall without any outside assistance.

Plain rings lack the flexibility to conform with worn cylinder wall conditions; i.e., conditions in which cylinder walls are no longer straight and round. To remedy these conditions is the principal function of the expander, or inner spring. The purpose of the expander is to exert independent pressure against the ring, forcing it to conform to variations in cylinder wall contour within the area of ring travel.

There was a time when engine manufacturers frowned on the use of expander type rings as a questionable procedure. Today, however, they have found this type of piston ring the answer to a very definite need. At least six engine manufacturers use such rings in production as original equipment. These and many other manufacturers buy them and stock them for replacement service in their vehicles.

Now we will turn to the consideration of some details from the reports of the members of Committee No. 5, giving examples of field experience which demonstrate the capabilities of expander type rings. The first case is that of a taxicab fleet operating a number of engines of approximately 200-cu. in. displacement. Cab fleet operation includes a great deal of idling, much low temperature operation, and much stop-start operation. The plain rings, with which the engines of this fleet were equipped, did not stand up very well under such operation. The drainage ports in the plain oil control rings became rapidly clogged with engine deposits, and as their efficiency thus decreased, the oil economy curve dropped. It is the experience of this fleet that blowby develops at about 10,000 miles. This is attributed to the loss in oil control efficiency, resulting in the formation of deposits around the compression ring, which slow their action. From that point on, the engine performance progressively deteriorated until eventually expander rings were installed at approximately 40,000 miles.

The test embraced four engines equipped with expander rings. The test was discontinued at 20,000 miles, and the rings removed for examination. The average oil economy for 20,000 miles on all four engines was 685 m.p.g. The fleet average for engines equipped with plain rings was only 200 m.p.g.

Although blowby had developed in the first operating period at about 10,000

(Turn to Page 134, Please)

. . . there is a reason . . .

Indeed, there is a reason why many nationally known Fleet Operators swear by Cooper Truck Tire performance — why Cooper Truck Tires now are chosen as original equipment by leading manufacturers of trucks and trailers.

That reason is Cooper's DSC* construction, an exclusive, scientific method that distributes stresses and strains equally throughout the circumference of the tire. At no point is the Cooper Truck Tire too flexible. At no point is it too stiff. That's why Cooper Truck Tires run cooler, longer, and with less likelihood of trouble.

Coopers meet all Government specifications. They are available in Non-Directional or Conventional treads. Your inquiry by wire or letter will bring some very interesting cost and maintenance facts and figures.

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The famous mud-and-snow tread. Big, deep lugs.

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Streamlined — Quiet — Rugged — Maximum Mileage.

Cooper Truck Tires

**Distributed Stress Construction*

EXPANDER RINGS CONSERVE

(CONTINUED FROM PAGE 132)

miles, and had remained present until the end of that operating period, there was no noticeable blowby throughout the second operating period. The expander type rings, with a unit pressure of approximately 200 lb. per sq. in. exerted against the cylinder wall, compensated successfully for the average maximum cylinder wall wear of .008 in. This wear resulted from the 40,000 miles covered in the first operating period. At the end of the second operating period of 20,000 additional miles, there was scarcely any measureable increase in cylinder bore wear, the average increase being reported as approximately .0002 in.

The average wear, per 10,000 miles, from the faces of all piston rings in the second operating period, was as follows:

Top (Plain Compression) . . . . .0021 in.
2nd (Expander Compression) . .0021 in.
3rd (Expander Cast Iron Oil) .0024 in.
4th (Expander Steel Oil) . . . . .0022 in.

It is interesting to note from these figures, the rate of wear of the expander steel type oil ring was the same as that of the expander cast iron type oil ring. Oil rings normally operate under full film lubrication. The committee member who submitted the report on this taxicab fleet experience has also done a great deal of wear testing with ring materials, and has found it to be true that there is no difference between the rate of wear with steel rings and cast iron rings, under the normal operating condition of full film lubrication. This applies both to wear on the cylinders and wear on the rings.

The uselessness of employing plain type ring sets in this service is clear. Only expander type ring sets should be employed, whether cylinders are newly rebored or worn.

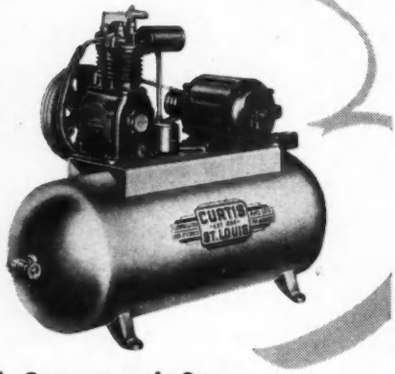
More information, testifying to the benefits to be derived from expander type rings, comes from a large operator of motor trucks, engaged in heavy hauling in city type operation, and in longer trip delivery service. The data represented the experience with engines in the 360 cu. in. class and the 500 cu. in. class. The experience with both classes of vehicle was the same, in so far as ring performance was concerned and, therefore, the data presented will cover both classes.

In this fleet a 300 m.p.g. base line was established for the 300 cu. in. engine, as the point at which the engines are to be overhauled. For the 500 cu. in. engine, a 200 m.p.g. base line was established. No oil mileage figures are plotted until the economy drops to 1000 m.p.g. At this point a close check is kept of oil consumption, as the economy drops toward the base line, so that the particular unit involved may be scheduled for overhaul at the proper time. After approximately 38,000 miles, the oil economy reaches the base line. At this stage it is necessary to replace the rings. When the rings were removed, the cylinders showed an average maximum cylinder wear of .0085 in. In this particular unit it was decided to replace with a new set of plain rings. No improvement in oil economy resulted. The oil economy was never above the base line. Even so, the rings were allowed to remain in service for 17,000 miles. Therefore, if this operator were to use plain rings alone, there would be no alternative but to rebore after the first operating period.

On another engine, under the same conditions, expander rings were installed instead, to replace the plain rings used in the first operating period. The first operating period reached the minimum performance base line after 36,000 miles of operation. After the rings were removed, the cylinders showed an average maximum wear of .008 in. Then expander type rings were installed. The expander ring combination ran for 25,000 miles before the base line was reached. Cylinder wear was reported as .0115 in. average maximum, and another set of expander type rings was installed. Whereas the first set of expander rings was of the segmental cast-iron type, the second set was a segmental steel oil type. This operating period terminated at 15,000 miles with the oil economy at 600 m.p.g. because of blowby. The blowby was traced to excessive bearing clearances, which were corrected before the start of the fourth operating period. New rings were installed, again employing the steel type ring. After 24,000 miles, the perform-

(TURN TO PAGE 138, PLEASE)

MORE TIPS FROM CURTIS on Proper Compressor Care



If you have to place your Curtis Compressor in Storage Follow These Easy Suggestions and Preserve Its Long Life and High Efficiency

★ If you curtail or shut down some of your services or outlets due to Wartime restrictions, it will pay you well to take good care of your Curtis Air Compressor, while out of service.

A few minutes' time following these simple suggestions will allow your compressor to remain in storage with a minimum of depreciation. Keep it ready to go to work for you again — as dependable as ever.

If you store your compressor:

1 **Drain the tank of any accumulated moisture.**

2 **Wipe grease and oil from rubber hose and belts.**

3 **Store hose and belts in cool, dark, dry place.**

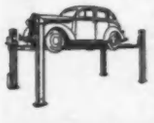
4 **Oil all working parts before storing. Inject a few drops of oil on suction and discharge valves. Oil all threaded pipe connections, too.**

5 **Coat bright machine parts — face of flywheel, motor pulley, plated parts — with vaseline or light grease.**

6 **Store entire unit in clean, dry location not subject to extreme heat or cold. Cover with heavy paper or canvas.**

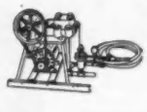
We hope you are not obliged to store your Curtis Compressor. But if it becomes necessary, the above service tips will preserve its long life and efficiency. When you are ready to put your compressor back in service, we will be glad to make further helpful recommendations.

CURTIS PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Company
1970 Kienlen Avenue St. Louis, Missouri



Curtis Four-Post Electric Lifts easily portable no excavating or floor sockets . . no overhead obstructions . . . maximum accessibility . . completely safe.

Curtis Hydraulic Rotating Lifts — safe at all heights exceptional accessibility . . . 16 ft. self-leveling platform . . four ton capacity . . handles all cars.



Curtis Hydraulic Car Washers . . new low prices . . simplified, rugged design, self-oiling . . money makers for any shop. Four sizes.

Let a Meehanite Foundry Solve Your Casting Problems

Ansonia, Conn.
Farrel-Birmingham Co., Inc.

Bridgewater, Mass.
The Henry Perkins Co.

Buffalo, N. Y.
Pohlman Foundry Co., Inc.

Charleston, W. Va.
Kanawha Manufacturing Co.

Chattanooga, Tenn.
Ross-Meehan Foundries

Chicago, Ill.
Greenlee Foundry Company

Cincinnati, Ohio
Cincinnati Grinders Incorporated

Cincinnati, Ohio
The Cincinnati Milling Machine Co.

Cleveland, Ohio
Fulton Foundry & Machine Co.

Denver, Colo.
The Stearns-Roger Mfg. Co.

Detroit, Mich.
Atlas Foundry Co.

Flint, Mich.
General Foundry & Mfg. Company

Hamilton, Ohio
The Hamilton Foundry & Machine Co.

Irvington, N. J.
Barnett Foundry & Machine Co.

Los Angeles, Calif.
Kinney Iron Works

Milwaukee, Wis.
Koehring Company

Mt. Vernon, O., Grove City, Pa.
Cooper-Bessemer Corporation

New York, N. Y.
The American Brake Shoe & Foundry Co.

Oakland, Calif.
Vulcan Foundry Compe

Orillia, Canada
E. Long, Ltd.

Philadelphia & Bethayres, Pa.
H. W. Butterworth & Sons Co.

Philadelphia, Pa.
Florence Pipe Foundry & Machine Co., (R. D. Wood Company, Selling Agents)

Phillipsburg, N. J.
Warren Foundry & Pipe Corp.

Pittsburgh, Pa.
Meehanite Metal Corporation

Pittsburgh, Pa.
Rosedale Foundry & Machine Co.

Rochester, N. Y.
American Laundry Machinery Co.

St. Louis, Mo.
Banner Iron Works

St. Paul, Minn.
Valley Iron Works

London, Eng.
The International Meehanite Metal Co., Ltd.

Waterloo, N. S. W.
Australian Meehanite Metal Co., Ltd.

Johannesburg, South Africa
Meehanite Metal Co. (S.A.) (Pty.) Ltd.

On the new Fruehauf Trailers with the "Passenger Car" ride

Meehanite BRAKE DRUMS

PROVIDE:

perfect braking surface, long lining life, quick heat dissipation

MEEHANITE Brake Drums play an important part in the smooth, dependable operation of Fruehauf Trailers. Because of the unique properties of this metallurgically controlled cast material, MEEHANITE Brake Drums provide:

1. Better resistance to braking heat
2. Smooth, sure braking action
3. Greater lining and drum life

Brake Drum service requires a material that is strong enough to withstand high pressures, rigid enough to prevent distortion, hard enough to resist wear, at the same time having the ability to dissipate the heat generated quickly and repeatedly in braking action without deterioration of metal surface or structure. Experienced users report that MEEHANITE Brake Drums meet these requirements most satisfactorily.

MEEHANITE RESEARCH INSTITUTE, 311 Ross Street, Pittsburgh, Pa.

MEEHANITE
SEND FOR BOOKLET

"MEEHANITE, the Material for Brake Drums"

EXPANDER RINGS CONSERVE

(CONTINUED FROM PAGE 134)

ance was again down to the minimum, and the cylinder wear .0185 in. average maximum. Another set of expander type rings was installed at this time, but after 10,000 miles the performance was again back to the minimum, showing that in this case it was not feasible to use expander type rings when the cylinder wear reached approximately .019 in., making reboring the only alternative. Cylinder wear rate per 10,000 miles is .0018 in. average maximum. It is the same with plain rings, expander type cast-iron rings, or with steel type oil rings.

Based on this fleet operator's experience, we can derive the following service mileage comparison from rebored blocks, comparing rebore and plain ring practice with rebore and rering practice:

SERVICE MILEAGE FROM REBORED BLOCK
360 AND 500 CU. IN. GASOLINE TRUCK ENGINES

Plain Ring Practice		*Expander Ring Practice*
	1. Plain Ring Set	36,000
	2. Expander Ring Set	25,000
38,000	3. Expander Ring Set	24,000
Total 38,000	Total	85,000

Streamlined Starts for Streamlined Tanks
Streamlined outside to deflect heavy enemy fire, the Army's new M-4 tanks are streamlined inside for swift, sure starting action. Sturdy "BENDIX" Drives are on the job on every fighting front. In replacement service on the home front, too, "BENDIX" Drives are "starting" essential vehicles toward Victory.
The "BENDIX" Drive is a member of "The Invisible Crew," precision equipment which 25 Bendix plants from coast to coast are speeding to world battle fronts.
THE INVISIBLE CREW
Precision Equipment by
Bendix
AVIATION CORPORATION
ARMY NAVY
ECLIPSE MACHINE DIVISION

Here again a great deal more service mileage was obtained from each rebore when expander type rings were used. These engines are operated approximately 2700 miles per month, so that the plain ring practice provides only 14 months' service between rebores, whereas the expander type rings yield 32 months service before the block must be reconditioned. A conservative estimate of total service mileage from each engine block follows:

TOTAL SERVICE MILEAGE FROM ENGINE BLOCK
360 AND 500 CU. IN. GASOLINE TRUCK ENGINES

Rebore Practice		
Standard		48,000
.020 in. oversize		40,000
.040 in. oversize		36,000
.060 in. oversize		30,000
Total		154,000
Rebore and Rering Practice		
Standard—	Plain	48,000
	Expander	36,000
	Expander	25,000
.040 in. O/S—	Plain	36,000
	Expander	30,000
	Expander	20,000
Total		195,000

These figures again are arbitrarily based on a maximum permissible oversize of .060 in. It is apparent that the total service obtainable from a block in this case before replacement or resleeving is required can be increased by 25 per cent or more when the benefits of expander type rings are utilized. This is equivalent to 15 months of additional service.

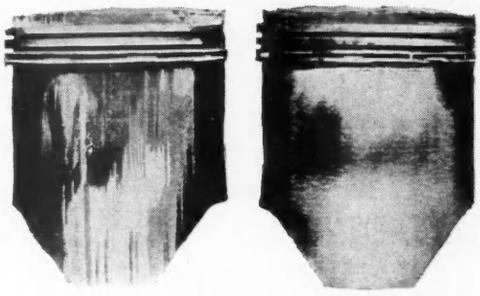
In changing from a rebore and plain ring practice to a new maintenance program employing expander type rings for additional service mileage, the pistons are called upon to give longer service. Accordingly, it is necessary to beware of top groove wear and to check for it. Usually with effective maintenance, the block will be worn to a point where reconditioning is necessary quite some time before the pistons lose their usefulness. The main requirements for long piston ring groove life are clean air and lubricating oil, free from grit. Thus, effective air cleaners and oil filters are advisable. Naturally, they must be carefully maintained.

In summary, we believe that the data collected by this committee demonstrate in an authoritative manner the value of expander type piston rings in the conservation program of the Office of Defense Transportation. Some of the advantages to be derived from expander type rings are:

1. They compensate for cylinder wear so that the time between engine reconditioning points is prolonged.
2. They increase the available service mileage from cylinder blocks by a very appreciable amount.
3. They allow the full usage of the block life, with fewer engine reconditioning periods, thus reducing boring expense, piston cost and out-of-service time.

(TURN TO PAGE 140, PLEASE)

This Oil Won't Run Away from HEAT



Left—a piston scuffed during the break-in period, using a regular motor oil.

Right—after running-in with Thompson Break-In Oil, identical mileage and conditions.

The Simple "Watch Crystal Heat Test" tells the story
Left—see how a few drops of a regular motor oil creep up the sides of the watch crystal to get away from the hot spot at the bottom.
Right—see how the same quantity of Thompson Break-In Oil, under identical heat conditions, "sticks to the hot spot".

Specifically made for breaking-in new or rebuilt engines, and lapping-in new parts, Thompson Break-In Oil "wets" super finished surfaces, and "sticks to the hot spots" to prevent scuffing and scoring.

PATENTED compounds processed *at the refinery* with the finest paraffinic base oil combat formation of varnish, gums, carbon, and crankcase sludge. With Thompson Aerotype Break-In Oil in the crankcase, parts lap in perfectly and stay clean, reducing frictional drag, stepping up horsepower, and cutting down fuel and oil consumption.

Good repair men and fleet maintenance shops protect their skillful work and get longer life from parts by including Thompson Break-In Oil as a regular step in rebuilding engines or whenever important new parts are installed.

THOMPSON PRODUCTS, INC.

Detroit • CLEVELAND • Los Angeles

NOT AN ADDITIVE
YOU FILL THE CRANKCASE

. . . Sold exclusively through T. P. Jobbers in grades SAE 10 and 20 (50 for aircraft).

CRANKCASE INSURANCE
—TRULY IN LINE WITH THE TIMES

Thompson AEROTYPE BREAK-IN OIL

GET IT FROM YOUR THOMPSON PRODUCTS JOBBER

FOR NEW AND REBUILT ENGINES—HEAVY DUTY UNITS—DIESELS—AIRCRAFT

EXPANDER RINGS CONSERVE

(CONTINUED FROM PAGE 138)

4. Expander type piston rings of the segmental design practically eliminate clogging, as a result of the independent action of the segments plus the wide drainage openings incorporated in their design. This keeps the rings free to function for prolonged periods under rigorous operating conditions.
5. Expander type rings, because of their longer effectiveness, prevent ring sticking caused by over-oiling and blowby, which in turn would cause oil oxidation and corrosion of bearing surfaces.
6. The overall indications are that expander type rings may be used with equal success in either rebore or re-ring jobs. Since there is no functional advantage in using plain rings in any job, there is no need of carrying them in the inventory, thus eliminating duplication. Furthermore, the use of expander type rings carries greater assurance of satisfactory performance.

WEAVER Wheel Dolly
Lets One Man Pull and Replace Wheels faster Than Two Men Can Without it!
SPEEDS UP BRAKE AND TIRE SERVICE
The Weaver Wheel Dolly saves vital time and manpower on all jobs requiring wheels to be pulled. One man can remove heavy dual or single wheels from the spindle, take them to the service department, and replace them. Wheels can be picked up off the floor and raised, by means of the screw jack on the Dolly, to exact spindle height.
See your jobber or write direct to
WEAVER MANUFACTURING CO.
SPRINGFIELD, ILLINOIS
Pledged U.S. TRUCK CONSERVATION CORPS
SERVICE SHOP WEAVER EQUIPMENT
SAFETY LANES

A New Electrical Book by W. H. Crouse

A new book entitled, "Automotive Electrical Equipment," by William H. Crouse, Field Service Engineer, Delco-Remy Division, General Motors Corporation, has just been published. The author is in a position to know what information is required by automotive electricians as well as by students of automotive electrical equipment. As an automotive electrical field service engineer, he has studied the methods advocated by manufacturers and the procedures used in the field for servicing and maintaining automotive electrical equipment.

The book explains the theory of operation, maintenance procedures, checks and adjustments, of the electrical units used on trucks, buses and passenger cars. It is profusely illustrated and covers, in 22 chapters, the fundamentals of electrical phenomena in such detail as to enable the student to grasp the theory of operation. At the same time it deals effectively with service and maintenance procedures, so the automotive electrician will be supplied with all data needed to service the automotive electrical equipment in operation today.

Published by McGraw-Hill Book Co., New York, N. Y. Price, $2.

Joint Army-Navy Winners

For high achievement in the production of axles and other vital equipment to keep the U. S. Armed Forces rolling to Victory, The Timken-Detroit Axle Company's three plants, in Detroit, Waukegan, Ill., and Oshkosh, Wis., now fly the joint Army-Navy Production Award flags.

The Independent Pneumatic Tool Company, Aurora, Ill., manufacturers of Thor portable electric and pneumatic tools, also won the joint Army-Navy "E" award for exceeding production goals.

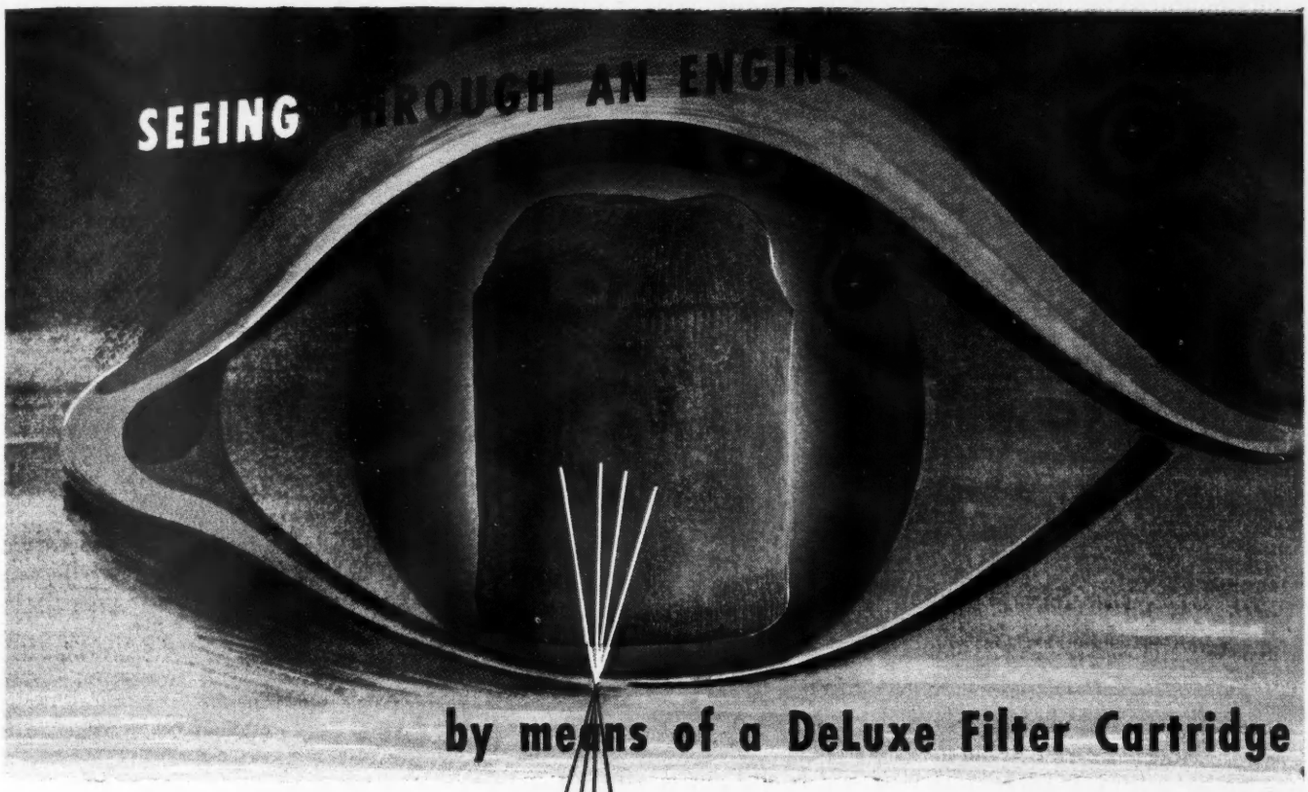
Auto Taxes Jump 35 Per Cent

Automobile and truck owners of the United States have been paying 35 per cent more automotive taxes since the first of the year than during the same period last year, notwithstanding a sharp falling off in car usage, according to a report made public by the National Automobile Dealers Association.

"United States Internal Revenue Collections from automotive sources for the first eight months of the current year were augmented by more than $200,000,000 revenue from the two automobile use taxes," says the report. "Automobile parts and accessories, up 99.8 per cent from last year, accounted for an additional $10,000,000 increase. Income from new trucks was up 31.3 per cent while the tax returns from transporting oil by pipelines increased 5 per cent and on lubricating oil, 3.5 per cent. Net increases for the eight month period were 35 per cent greater than for the same months of 1941.

Pennsylvania Rubber Makes War Tire

Pennsylvania Rubber Company, Jeannette, Pa., announces the production of the new all reclaimed passenger car tire as authorized by the War Production Board Oct. 1, 1942, with a maximum of four ounces of crude rubber to be used per tire.



by means of a DeLuxe Filter Cartridge

Look at a DeLuxe Cartridge and you can almost see into the engine! Yes, in the DeLuxe Cartridge are the clues which lead to the detection and prevention of engine ills!

For example, the cartridge illustrated above plainly tells the skilled eye of the DeLuxe field engineer that:

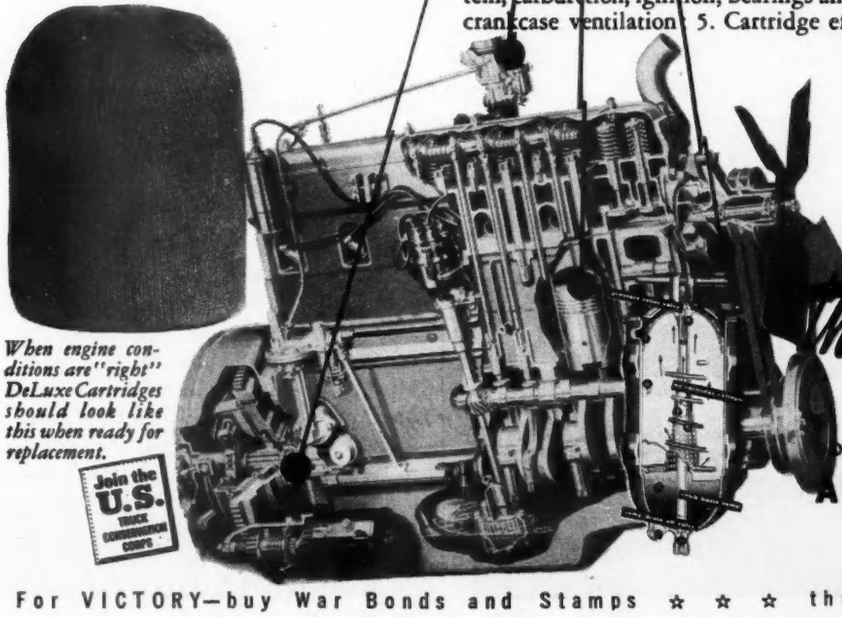
—the engine is running too cold!
—the carburetion is too rich!
—the inside of the engine is being coated with lead deposits!
—the oil is losing its lubricating qualities too quickly!

Diagnosis of engine conditions through the physical examination of the filter cartridge is one of many discoveries resulting from DeLuxe's continuing research and study of the problem of making oil and engine parts last their longest.

Requests for Cartridge Diagnosis Now Being Accepted. Requests for analyzation of cartridges by fleets, bus and truck operators, will be handled by DeLuxe field engineers as quickly as the volume of requests permits. Through such diagnosis you will secure a report on: 1. Type of operation; 2. Whether or not the engine is operating at the right temperature; 3. Correctness of oil viscosity; 4. Condition of cooling system, carburetion, ignition, bearings and crankcase ventilation; 5. Cartridge efficiency; 6. Whether or not the filter is correctly installed.

Get "Filter Facts" Booklet Now! Send today for free copy of "Filter Facts". In this treatise on oil and oil cleansing read the facts about making oil and engines last their longest. Read why DeLuxe does a better job because it removes the sludge and varnish forming asphaltenes *before* (not after) they can form into sludge and engine varnish! Important to this actual oil cleansing is the DeLuxe Cartridge..the only cartridge with the perforated cone for uniform oil distribution..and the inner spiral spring to prevent cartridge collapse. DeLuxe Products Corp., 1406 Lake Street, La Porte, Ind. *In Canada:* 364 Richmond Street, Toronto.

Copyright 1942, DeLuxe Products Corp.



When engine conditions are "right" DeLuxe Cartridges should look like this when ready for replacement.

Join the U.S. TRUCK CONSERVATION CORPS

the DELUXE OIL FILTER

DOES MORE THAN STRAIN OIL..MORE THAN FILTER OIL

ACTUALLY CLEANSES OIL

For VICTORY—buy War Bonds and Stamps ☆ ☆ ☆ throw YOUR scrap into the fight

SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 28)

has continued a heartening example of effective collaboration between two Government organizations. On March 9, there came into effect General Conservation Order No. M-100 of the War Production Board which "unfroze" the stock of new vehicles immobilized since January 1, but subjected to a special rationing procedure their flow into civilian users' hands. In brief, this procedure or machinery included the following principal elements: (1) An application form (the famous "PD-310"), containing some searching questions as to present operations and practices of the applicant, and proposed use of the desired equipment; (2) A "Usage Classification List" which grades motor transportation uses into five broad classes, only three of which are regarded as being directly or indirectly connected with the war effort or with essential public health and safety activities; (3) A staff of local allocation officers (composed almost entirely of the district directors and district supervisors of the Bureau of Motor Carriers, Interstate Commerce Commission — men long experienced in motor transportation and government regulatory work, now 123 in number, located in 80 cities) who comprise the first "filter" in the sieve through which applications must pass; (4) local appeal boards, 17 in number, a second "filter"; (5) an Allocations Section in the Division of Motor Transport, Office of Defense Transportation, at Washington, D. C., the third "filter"; (6) finally, the Automotive Branch of the Industry Operations Division, War Production Board, also at Washington, which has complete authority over the issuance of certificates of transfer to those applicants who survive the filtering process.

Parenthetically, it might be said that this procedure was the outgrowth in considerable part of interviews and conferences with vehicle manufacturers, dealers, operators, and trade organization representatives; that the application form was developed by repeated practical tests with operators and others; and that the first supply of the application forms and accompanying instructions was printed by the Automobile Manufacturers' Association in order to expedite delivery to the public. A more striking example of cooperation between government and industry in developing a practical means of handling a new problem would be difficult to find.

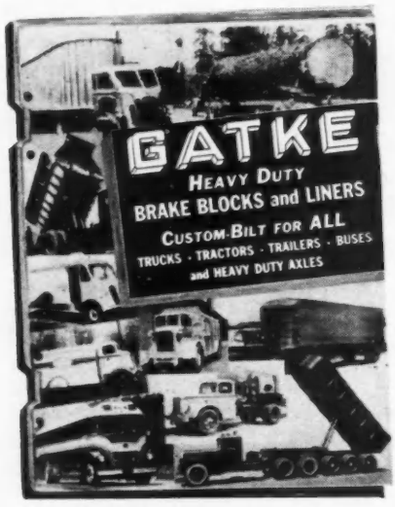
Initial Flood of Applications

As was expected, the flood tide of applications occurred during the first weeks of rationing, revealing the extent of the pent-up demand caused by the "freeze" of January and February, and the lack of realization on the part of truck users of the actual shortage of equipment. In the local allocation offices from mid-March to the end of May, approximately 84,000 applications (each representing one vehicle) were handled, or close to 8000 per week, and 25,000 were approved and forwarded to Washington. Had this rate continued, it would not only have swamped the field and headquarters personnel, but would have made

(TURN TO PAGE 144, PLEASE)

GATKE BRAKE BLOCKS

Custom-Bilt for your Job



The GATKE Heavy Duty Catalog simplifies selection of CUSTOM-BILT Brake Blocks and Liners for Trucks, Tractors, Trailers, Buses and other Heavy Duty Equipment.

Fleet Operators of all kinds are finding the *Extra Performance Advantages* of GATKE *CUSTOM-BILT* Brake Blocks especially valuable these days.

The *smooth, non-grabbing* action with proper balance between primary and secondary shoes *adds miles to tire life, prolongs* drum life, affords maximum braking effectiveness and saves maintenance.

To *save time* and get the proper Brake Materials for *your exact requirements,* take advantage of the GATKE Brake Survey System. It will bring you *experience-proved recommendations* for each unit you operate.

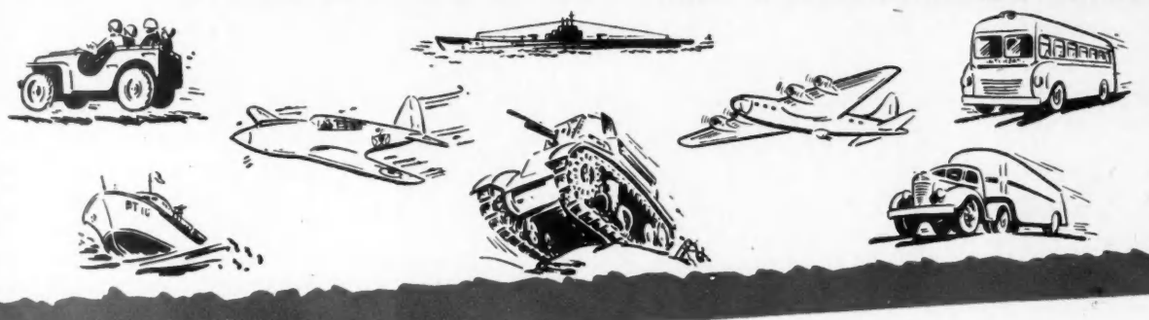
Ask your GATKE Jobber or write for details.

GATKE Brake Blocks are CUSTOM-BILT for all Trucks, Tractors, Trailers and Buses

GATKE CORPORATION
228 N. La Salle St. Chicago, Ill.

SIOUX TOOLS

a name to reckon with!



in either production or maintenance

SIOUX TOOLS INCLUDE:

Electric Drills — Bench Grinders
Portable Electric Grinders
Portable Electric Sanders
Portable Electric Polishers
Phenol Abrasive Discs
Grinding Wheels — Flexible Shafts
Wire Wheel Brushes
Valve Face Grinding Machines, Wet Grinders (Aviation and Automotive)
Dual Action Aviation Valve Seat Grinder (Dry)
Dual Action Valve Seat Grinder (Automotive)
Wet Valve Seat Grinding Machine for Aircraft Radial Motors

YOUR JOBBER SELLS THEM

STANDARD THE WORLD OVER

ALBERTSON & CO., INC. SIOUX CITY, IOWA, U. S. A.

SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 142)

necessary the fixing of arbitrary quotas for each month and each area.

Fortunately, the torrent of applications receded as the public learned that it was difficult indeed to buy new trucks and became aware of the vital part the conservation of commercial vehicles would have to play in the war effort. By mid-June, the stream of applications reaching Washington had fallen to a level of approximately 1500 per week, and by the end of September had dropped to about 1200. Thus the volume of total civilian demand for trucks, truck-chassis and trailers under the heavy hand of war, has come to be of manageable size, and the modest facilities set up by the War Production Board and the Office of Defense Transportation for the rationing job have been adequate; even more important, the stream of meritorious applications which show connection with the war effort or other essential use is flowing at a level which corresponds to the prudent husbanding of the remaining stock of new vehicles.

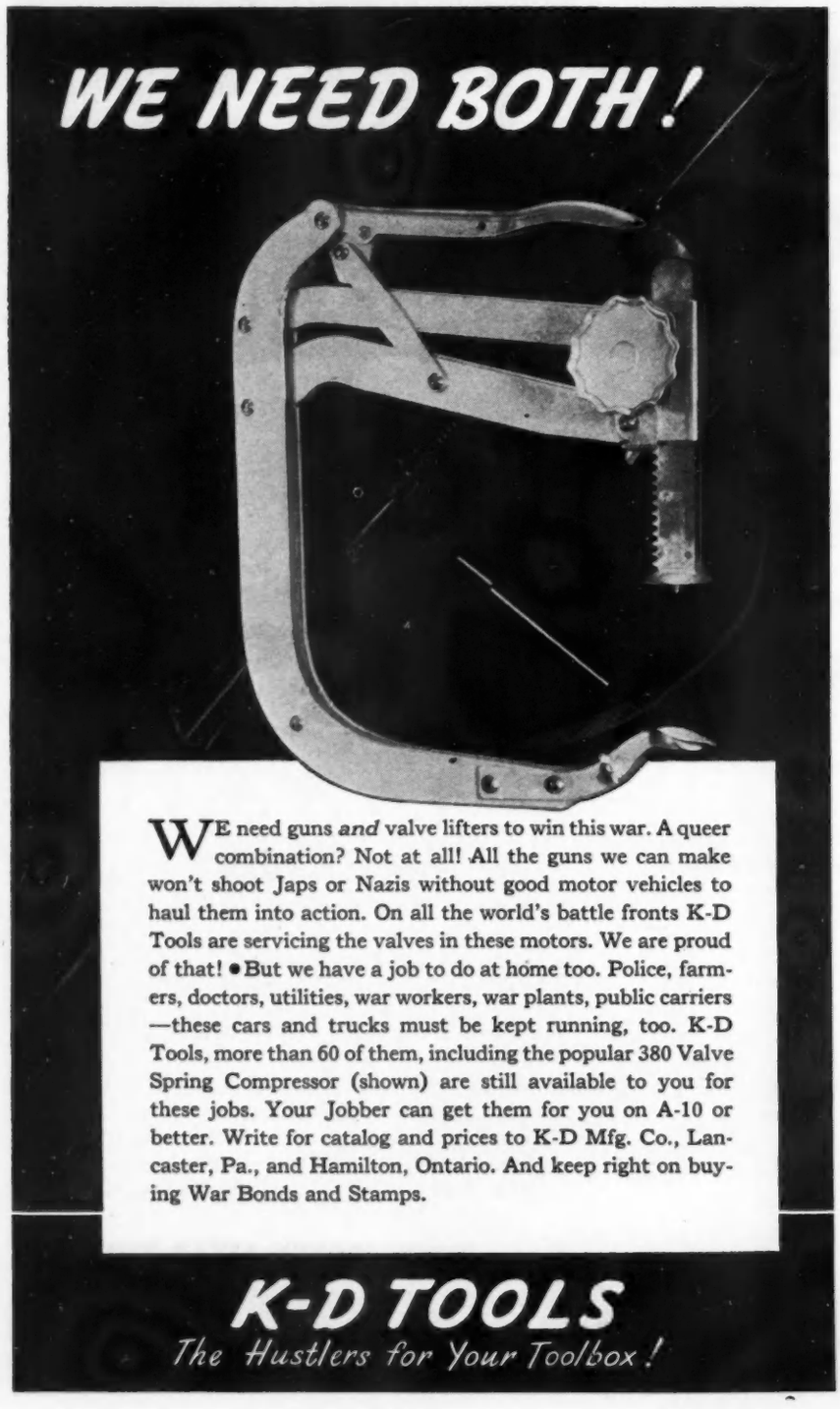
The Available Stock

Early in 1942, the best estimate available was that there were in the neighborhood of 190,000 trucks, truck-tractors and chassis either already manufactured or to be manufactured before materials ran out. At the beginning of June, with production at an end and deducting the releases up to that time both under the rationing system and under special releases by the War Production Board prior to March 9, the total number available for rationing was estimated at about 150,000. In June came the first definite indication of the number which would be available for civilian users, when the Requirements Committee of the War Production Board—the court of last resort in matters of this kind—definitely earmarked for civilian use 20,000 light units (up to 9000 pounds gross vehicle weight or 1-ton rated capacity), 52,000 medium units (9000 to 16,000 pounds g.v.w., or roughly 1½-2 tons capacity), and 6000 heavy units (over 16,000 pounds g.v.w., or roughly 2-tons and over capacity). *The total was only 78,000, and it was to last from July 1 to the end of "the duration." The depth of the cut from normal times is realized when compared with total sales of these three classes in the single calendar year 1941—320,000 light units, 335,000 medium, and 45,000 heavy—a total of 700,000!*

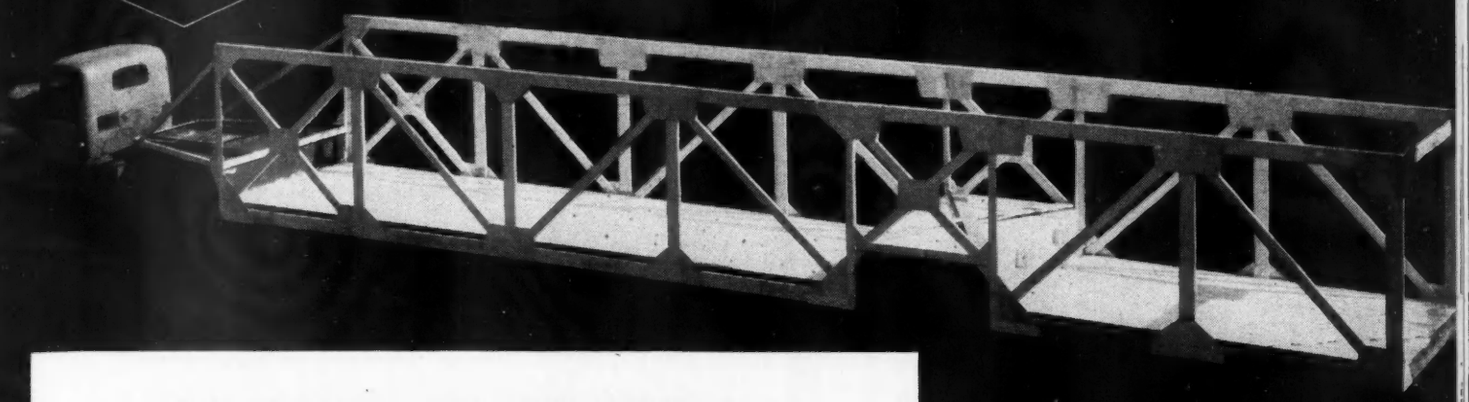
The Requirements Committee also fixed the number of trailers available for rationing to civilian users at approximately 7000, this figure representing the total available stock, plus a small amount of continued production under special permit. Here again the same striking contrast with previous sales volume was evident: in 1941 alone sales of trailers were estimated at around 40,000.

A new inventory of the total stock of new commercial vehicles in the hands of producers, distributors, dealers, finance companies, and others, is being taken by the War Production Board, and although its complete results are not yet known, it is evident that no new reservoir of supply has been found. One thing

(TURN TO PAGE 146, PLEASE)


WE NEED BOTH!
WE need guns and valve lifters to win this war. A queer combination? Not at all! All the guns we can make won't shoot Japs or Nazis without good motor vehicles to haul them into action. On all the world's battle fronts K-D Tools are servicing the valves in these motors. We are proud of that! • But we have a job to do at home too. Police, farmers, doctors, utilities, war workers, war plants, public carriers —these cars and trucks must be kept running, too. K-D Tools, more than 60 of them, including the popular 380 Valve Spring Compressor (shown) are still available to you for these jobs. Your Jobber can get them for you on A-10 or better. Write for catalog and prices to K-D Mfg. Co., Lancaster, Pa., and Hamilton, Ontario. And keep right on buying War Bonds and Stamps.
K-D TOOLS
The Hustlers for Your Toolbox!

SCHULT



This trailer for hauling ambulance bodies uses a minimum amount of critical materials, yet embodies sturdiness and light weight.

WE HAVE EXPERIENCE • FACILITIES • RESOURCEFULNESS

Years of experience as builders of bodies and trailers for commerce and industry enable us to serve you by building anything you may require in the transportation field. For example: Schult has built commercial bodies, freight trailer bodies, passenger bus bodies, trailer bus bodies, medical and dental clinic trailers, laboratory trailers, horse trailers, glider trailers.

We will supply steel, steel and wood, or wood construction as may be required, strongly and sturdily built for long life. Send us your transportation problems and we will put our engineers to work on them. WE ARE TRAINED IN THE MOST EFFECTIVE USE OF NON-CRITICAL MATERIALS. Call, wire or write today.

SCHULT TRAILERS, Inc., Dept. 3511, Elkhart, Ind.

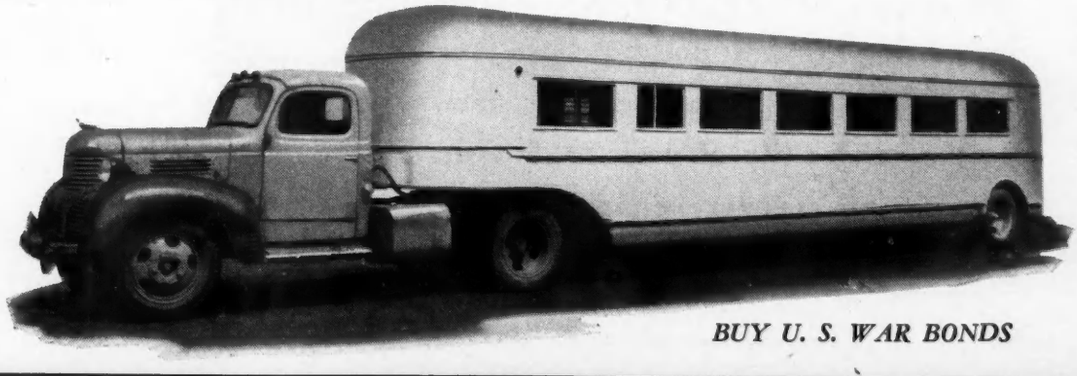
Manufacturers of Busses, Bodies and Trailers for Commerce and Industry.

5 REASONS FOR CALLING SCHULT

1. We comply with wishes of the O.D.T., by building with a minimum amount of critical materials.
2. Because we have the "know how" experience to build all kinds of bodies.
3. We have an organization of specialists. Schult workmen have been doing exactly this type of construction for years.
4. Our plant facilities are readily adaptable to any kind of trailer or bus body work.
5. We have repeatedly proved our ability to make quick delivery.

★

This is a splendid example of Schult construction in another field. This bus trailer for transporting war workers is built on a former auto hauling chassis.



BUY U. S. WAR BONDS

SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 144)

is definite: that, as of June, the WPB fixed the total number of power-units available to civilian users at 78,000, based on the inventory figures available at that time. The balance of available stock must go to the Government Exempt Agencies, notably the Army, Navy, Maritime Commission and Board of Economic Warfare (export).

The "Sales Figures" of Rationing

Results of the first half-year of rationing (by the calendar a little more than six months, from March 9 to the end of September) may be summarized in round numbers as follows:

Total number of PD-310 applications (each application representing one truck, truck-tractor, chassis, or trailer) handled by all of the Local Allocation Officers	133,000
Total number of applications approved and forwarded to the ODT at Washington	46,000
Total number of applications finally approved by the ODT and WPB at Washington, and certificates of transfer issued	34,000

Thus, taking the first figure above as 100 per cent, the proportion of applications passing the first "filter" of the Local Allocation Officers has been 35 per cent, and the proportion finally surviving the filtering process has been 26 per cent.

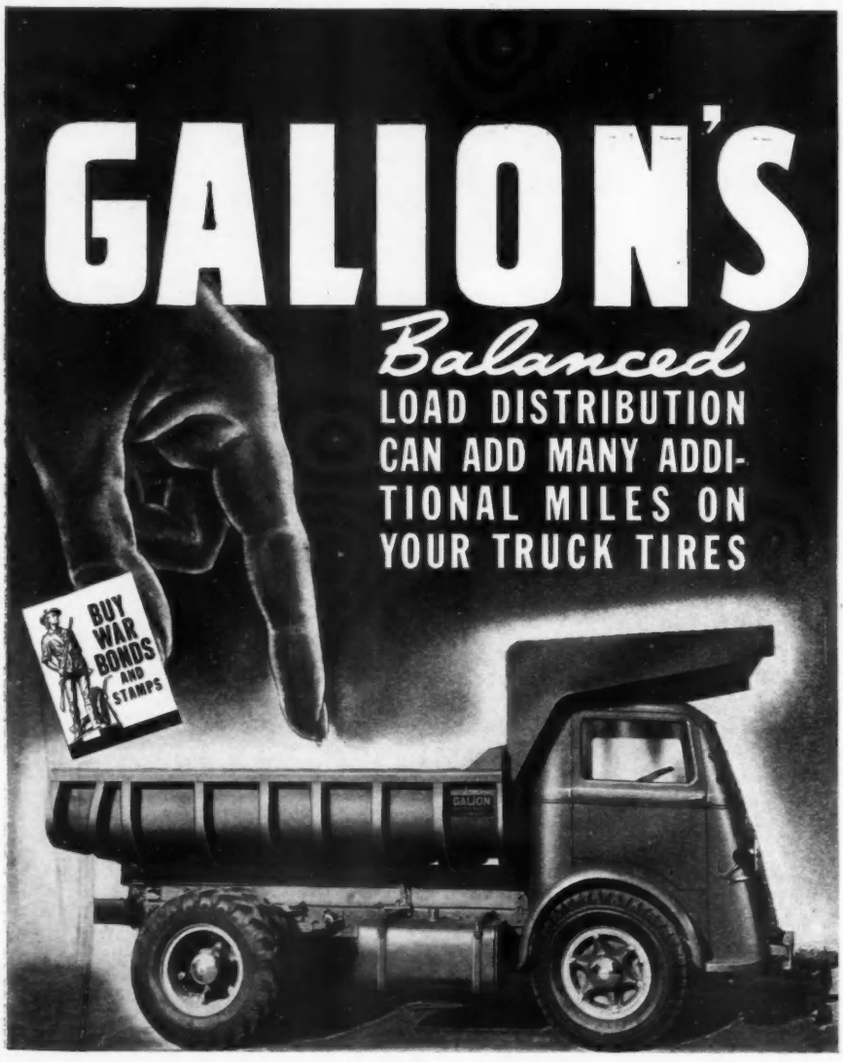
Breaking down the third figure above, the distribution by weight-classes of vehicles actually rationed has been as follows: light trucks—6300, medium trucks—17,800, heavy trucks—5100, trailers—4000, miscellaneous—800.

At the average rate of release of new commercial motor vehicles under the rationing system in the period June-September, the rationing pool available for civilian users should last until the end of 1943. The rationing procedure is so set up that the rate can be increased or lowered at any time, depending primarily upon military considerations and the progress of the war. To say how long the pool will actually last, or what the future rate of withdrawals will be, is like asking when the war will end. No one can yet answer.

Government Exemption Permits

The figures cited above cover only new vehicles released for civilian usage—trucks, truck-tractors, trailers and a few miscellaneous vehicles such as station wagons, ambulances, hearses and sedan deliveries. It is interesting to note here, although it does not directly concern the problem of civilian rationing, that the total releases to the so-called "exempt agencies" (including the United States Army, Navy and Marine Corps, the United States Maritime Commission, the Panama Canal, the Coast and Geodetic Survey, the Civil Aeronautics Administration, the National Advisory Committee for Aeronautics, the Office of Scientific Research and Development, and a certain number of vehicles for export) from March 9 to the end of September were approximately 40,000. A much larger proportion of these, however, was in the classes of light trucks and mis-

(TURN TO PAGE 148, PLEASE)



By means of the patented double equalizing lift arms and balanced load distribution, Galion aims to add miles to the service life of your truck tires.

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CARE FOR YOUR TIRES
Load Moderately
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Reduce Speed
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Inspect Regularly

"WOULD NOT PUT TRUCKS ON ANY OPERATION WITHOUT THIS EQUIPMENT"

See how two stationary pointers mark limits of "economy range" on these trucks—making it easy for drivers to keep motor at correct speed for maximum efficiency.

Manager of Fentress-Hill Logging Operation Says: *Motor Mile Tachometer Cuts Trucking Costs!*

WRITES Sam Lockwood, manager of the Fentress-Hill operation at Klamath Falls, Oregon, "During the logging season we used nine new International trucks . . . with Stewart-Warner recording tachometers.

"We found that one of the greatest factors in good operation was *careful use of the tachometer* . . . We certainly would not put any other trucks on any operation without supplying them with this equipment.

"The tachometer not only gives better performance and lower trucking costs, but gave us *the most accurate method of figuring the cost of any truck operation.* All of our costs have been broken down into tachometer miles, and our experience has shown that this is the best way to figure the rate on the truck haul."

You can LENGTHEN TRUCK LIFE AND S-T-R-E-T-C-H FUEL MILEAGE with the help of Stewart-Warner Motor Mile Tachometers! Others report fuel and repair costs cut as much as 25%—*with maintenance expense sharply reduced!* Mail the coupon for full information!

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I operate .... trucks. Please give me all the facts about longer truck life and lower operating costs with Stewart-Warner Motor Mile Tachometers.

Name.....

Address.....

City..... *State*.....

Firm Name.....

SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 146)

cellaneous vehicles than was the case with the civilian allocations. Figures on the number of vehicles each agency has obtained are a military secret. It is obvious, of course, that the GEP releases of civilian-type vehicles to the Army and other military agencies are very small in comparison with military-type vehicles, which are still being produced in great numbers.

Difficulties of Analysis by Industry Classes

Since each application for a new vehicle is judged on its individual merits of usage and urgency, and not according to arbitrary generalizations as to the relative importance of various industries or vocations, any statistical tabulation of approved applications must be regarded more as a mirror of what has happened than as a searchlight pointing to what should happen. As conditions change, the percentage of vehicles allocated to individual industries also will change. Because of the variations in demand for vehicles, the impracticability and undesirability of assigning arbitrary quotas, and the unpredictable course of the war and of civilian economy, an analysis of allocations during the first six months of rationing would be of little or no value. With these qualifications in mind, it is possible only to indicate some of the main classes of users which have obtained vehicles under the rationing system.

As regards trucks and truck-tractors, it is not surprising to find that the largest single group of users is that of contractors working on military projects. Here is basically important work—airports, cantonments, new shipyards, all kinds of military construction activities. Continuous efforts are being put forth to see that these contractors use their equipment efficiently and with maximum intensity, and the cooperation of the U. S. Corps of Engineers and other agencies has been sought to this end. Agriculture accounts for another important block of allocations, most of such vehicles going to farmers, others to grain, milk and stock producers and the like. Vehicles for construction jobs with an indirect war connection, such as defense plant and defense housing projects, also loom large in the total; and other important classes are logging operations, manufacturing for the war effort and petroleum production and distribution.

As for trailers, the most important groups have been common carriers of property, logging operators, and contractors on military construction projects.

Appeals as an Index

The number of cases appealed under the rationing system has been surprisingly low. It had been assumed that most applicants would try at least one appeal, in case of disapproval by the local allocation officer, just to test out the procedure if nothing else, but this is not borne out by the facts. Of the total applications disapproved by the local allocation officers up to and including September 30, only 20 per cent have been appealed. (And of the total applications appealed, it should be

(TURN TO PAGE 150, PLEASE)

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EXCHANGE READY LINED BRAKE SHOES & REBUILT BRAKE CYLINDERS

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Avoid costly delays from late and uncertain deliveries. Everybody has a war shortage of man-power that tends to make emergency deliveries on re-lines difficult.

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- **Avoid Costly Delays**
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CARS AND TRUCKS ARE GROWING OLDER ★ THEY NEED REPLACEMENT BATTERIES BUILT TO STAND UP UNDER THE EXTRA DEMANDS OF WARTIME SERVICE ★ THAT'S WHY SO MANY PREFER

GLOBE SPINNING POWER BATTERIES

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SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 148)

said, only 12 per cent have been affirmed by the appeal boards, thus reversing the local allocation officers.) The figures might be taken to indicate a feeling of resignation on the part of applicants about the whole business. Much more reasonable, however, is the inference that in most cases the vehicles applied for were not really vital to the war effort or to public health and safety, and that the applicants knew this better than anyone else, and knew also that their wants could be met in some other way than by new trucks.

What the Rejected Applications Reveal

Approval of 34,000 applications in six months indicates that the rationers must be able to say "yes" frequently, despite beliefs held in various quarters to the contrary! But the fact that almost three times that many applications have been turned down shows that there must be serious faults in a lot of them. Here are some of the more prevalent:

Failure to recognize the facts about the truck situation is perhaps the first. The war seems to be far from the mind of many an applicant as he sets himself down with a "business-as-usual" air to order a new truck just as he would have done in normal times. What he should be asking himself, instead, is something like this: "Do I really need this truck? Have I combed over everything I own now, and seen whether repairing or reconditioning an old job will do for the present? Can I work my vehicles longer each day? Can I buy a used truck? How about renting a truck? Can I honestly ask for a new truck under present conditions?" This is the type of self-questioning which every applicant should go through. The application for a new vehicle should be made only as a last resort.

Anticipation of future needs, in happier days a characteristic of all intelligent and forehanded business management, is insufficient justification for a new truck application today. What an applicant thinks he may need in the way of new truck equipment, six months or even one month from now, has little weight with the hard-hearted rationers; it's the existing need, immediate and demonstrable, which alone moves them.

Carelessness is another fault. Many applications obviously have been prepared hastily, and without any real attempt to submit a clear and complete picture of the applicant's need and merits—provided the latter really exist, of course. Often it is only when an appeal is submitted that supporting facts are set forth which should have accompanied the original application.

Some applicants seem to feel that the only important test for an application is that of usage, and that if their operations are in a high classification, their wants will be at once automatically supplied. This, of course, ignores a second equally important test—that of urgency. The applicant must prove not only that he proposes to use the vehicle in essential service, but that he has got to have it right now! "Important usage and immediate urgency" are

(TURN TO PAGE 152, PLEASE)

OLD BEARINGS must now be made to run just as long as possible. Modern equipment for washing, drying and repacking together with proper lubricants is now a "must". Every service man should consult his wholesaler and every wholesaler should spare no effort to educate service men on modern scientific bearing maintenance.

Every worn ball bearing that must be replaced should be turned in to the wholesaler for reconditioning. Ahlberg Ground Ball Bearings are the answer to the bearing shortage which is becoming more acute each day. These scientifically reconditioned ball bearings will provide new bearing performance for replacements just as they have served thousands of users for more than thirty-five years.

You can play a definite part in the defense program by broadcasting careful maintenance of existing bearings and by collecting worn ball bearings for Ahlberg processing. Write for AGB particulars. Let's keep 'em rolling.

Let's Keep 'em Rolling

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National SAVIT Service prevents troubles before they happen. It's not merely a method or a system. It's a perfected combination of products scientifically applied to do a specific job...to make motors last longer...retard accumulations of sludge and gum...protect bearing surfaces ... eliminate catalytic action and corrosion...boost compression...save gasoline and oil. A demonstration on your own equipment costs you nothing. Write today. Our engineers are at your service to give you the full benefit of National's 60 years of experience.

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East of Ohio . . . The Globe Refining Company, Cleveland, Ohio

SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 150)

the two basic criteria for rationing.

Applications frequently indicate a lack of resourcefulness. That Yankee ingenuity which was one of the foundation stones of the Republic was never more needed than it is today, when the life of old vehicles and old parts has to be extended long beyond the normal span. In times like these, the man who keeps an old truck running may well be contributing a greater service to his country than the man who seeks a new one.

The fine hand of politics shows itself in some applications, but it can be taken as almost axiomatic that the merit of an application is in inverse ratio to the amount of political pressure behind it. And this is regrettable, for elected representatives of the people, with their knowledge of local conditions and personalities, could be—and indeed sometimes are—of great assistance in giving a fully-rounded assembly of the facts pertaining to an application. Perhaps as time goes on these friends of the applicants in high places will set themselves more assiduously to the task of determining whether or not the application on which their help is sought is really a meritorious one.

The Dealer Problem

The hand of the truck dealer too is very evident in many applications. It is true that the cooperation of truck manufacturers and dealers was sought from the very outset, for they are in a preferential position to give helpful information to prospective purchasers. Manufacturers generally have well understood that rationing means conservation, and that conservation means a controlled and relatively slow rate of withdrawal from stock. To numerous dealers, however, the "facts of life" about this disagreeable rationing job have come hard. They see new vehicles standing unused on their premises, some of them ordered long ago, and they have lengthy lists of customers who are ready and anxious to buy. But their plight is only a part of the economic dislocation caused by the war.

Help has been given manufacturers and dealers, through the Reconstruction Finance Corporation, in carrying the financial burden of their stocks. Requirements have been set up for the proper storage of vehicles. It is inescapable that the stock of new vehicles must last for many months to come and that these vehicles must be held somewhere, even under the very eyes of dealers who want to sell them. To the vast majority, who face the situation realistically and redouble their efforts on service and repairs, all credit is due.

Some Special Procedures

There are certain classes of transportation demand which are so important as to have caused the establishment of special procedures for handling them. An example is that of school buses. National school authorities estimated that the number of school buses which would have been purchased in 1942 under normal conditions was about 10,000—an impossibly large share of the entire pool available for rationing. These same authorities, however, recognized that school transportation contained a

(TURN TO PAGE 156, PLEASE)

BETTER RING JOBS FASTER—EASIER

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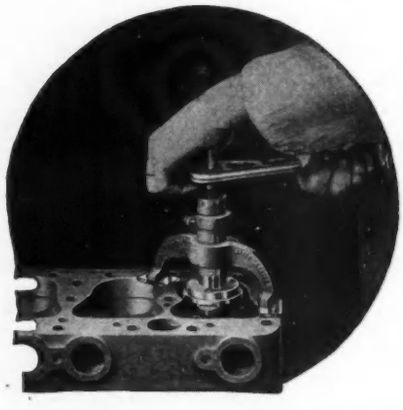
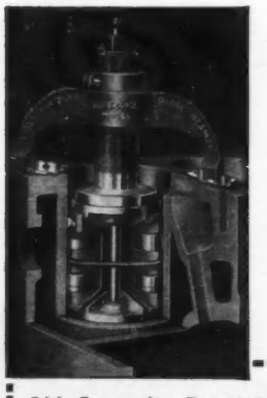
Ridge Reamer

Removes top ridge in ONE Minute!





For smoother, quieter, longer-lasting ring jobs —remove the top cylinder ridge with a Lisle Ridge Reamer, before installing new rings. The Lisle removes the ridge in one easy operation in one minute per cylinder. The patented lathe action follows worn cylinder contours—leaves the cylinder wall straight, true and smooth, so that ring fitting is easy. Factory-set cutter eliminates tedious resetting. Standard size handles cylinders from 2.6″ to 4 inches. Oversize jaws increase range to 2.6″ to 5″. Write for prices, details.

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WOLF'S HEAD OIL
HEAVY DUTY
WOLF'S HEAD OIL
To All Truck Operators
2
LUBRICATION ENGINEER'S DATA SHEET ON OIL SAMPLE
DISTRIBUTOR
Date
Data on sample sent to WOLF'S HEAD OIL REFINING COMPANY on
(date)
Truck or car owner's name
Truck or car owner's address
Grade of WOLF'S HEAD used: SAE #
Heavy Duty SAE #
Kind of service
Data on test run: Started - - Date
Mileage
Finished - - Date
Mileage
For stationary equipment or "self-propelled in limited area" like steam shovels, etc., specify hours run
Unit: Make
Model &Size
Owner's Identification
Gasoline engine?
Diesel engine?
Total mileage on unit
Mileage since last major overhaul
Kind of filter
Exact mileage on present filter cartridge
Exact mileage on oil sample submitted
Quantity of "make-up" oil added since last drain
Grade of gasoline or fuel used
quarts
Air cleaner used: Kind?
Regularly serviced?
Special information or unusual circumstances
IF ENGINE IS OPENED UP AFTER TEST RUN ON SAMPLE, ANSWER FOLLOWING QUESTIONS:
Your estimate of extent of ring filling in percentage
Condition of the valves: Intake
Exhaust
%
Surfaces showing lacquer, if any
Character lacquer deposit: Light
Medium
Heavy
Character deposits on under side of pistons
Condition of: Oil screen
Crankcase
IMPORTANT:
Be sure to take average crankcase sample when
Signed
Be sure to take average crankcase sample when
sample in clean container
to date, owner's
send a full one quart
fied by tag or label as
to assure proper atten-
ry. secure a supply of

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Wolf's Head Heavy Duty Oil—developed especially for trucks, buses, and other heavy duty equipment subject to severe operating conditions — *combines* characteristics never before found in one oil. Extensive field tests — and the service records of many satisfied users — prove that Wolf's Head "H D" Oil prolongs engine life and definitely makes possible *lower* maintenance cost per unit, per mile, per fleet, per year.

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Assures BEST Lubrication Practice

Wolf's Head Laboratory Control Service provides fleet operators with specific recommendations for their *own* units, based on analysis by Wolf's Head engineers of oil drained from the crankcases of the fleet's units. These recommendations help to establish correct drain periods, conserve the life of the units, reduce lay-ups for service, and frequently reveal unsuspected mechanical trouble.

FIND OUT MORE *about Wolf's Head Heavy Duty Oil, and how to obtain Laboratory Control Service for your own fleet, by writing to Wolf's Head Oil Refining Company, Oil City, Pa., or New York, N. Y.*

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MOTOR OIL AND LUBES

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SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 152)

great deal of slack, and that rationing would be a powerful stimulus to increased efficiency of operation, a goal toward which they had been laboring for years. The National Council of Chief State School Officers has developed a program in which ODT and WPB cooperated, a feature of which is the pre-filtering of every school bus application through the offices of county and state school officials before submittal to the appropriate local allocation officer. Those applications which finally reach Washington, and they are very few in number, are reviewed by a special jury composed of an ODT rationing officer, a special representative of the Division of Local Transport of ODT who has had many years' experience as a state school-transportation official, and a representative of the office of the U. S. Commissioner of Education. The theory and practice of rationing at its best are exemplified by this procedure, for it operates along thoroughly democratic lines: careful study and recommendation by county and state school officials upon each individual application for a school bus, initial review by the local allocation officer who knows intimately the entire transportation problem in his area, and final decision by an impartial jury at Washington.

Farmer applications constitute another special problem. ODT and the Department of Agriculture have just completed a program for dealing with motor vehicle transportation conservation, under which all applications for new commercial motor vehicles for use in transporting farm products and farm supplies will first be considered by the County and State War Boards of the Department of Agriculture before being submitted to the local allocation officers. (The study will involve the supplying of a considerable amount of supplementary information by each farmer-applicant.)

Applications from contractors for vehicles to be used on military construction projects are referred to the appropriate Federal departments at Washington for advice as to their importance and urgency. A large share of such applications come from contractors working under the U. S. Corps of Engineers, and in these cases approval is required both from the Corps Area Engineer and the Office of the Chief of Engineers.

Operations divisions and sections of ODT and WPB at Washington are consulted on applications falling within their official scope. An example is the handling of requests for truck-chassis to be used for bus purposes, and for all bus bodies, which is performed with the cooperation of the Division of Local Transport of ODT. (Buses of the so-called unit or integral types are not subject to the M-100 order, and are handled by special machinery set up by ODT and WPB.) Further examples of this cooperative "screening" are found in the handling of applications for State and local governments, petroleum carriers, and others.

All of these special procedures have been established in order to guarantee, so far as humanly possible, that meritorious applications

(TURN TO PAGE 158, PLEASE)

Reclaim
VITAL PARTS
BY
WELDING
...And Make Repairs Without Replacement
War-time restrictions on new spare parts won't tie up work in your service shop if you utilize the speed and economy of electric welding.
MARQUETTE'S simplicity of operation and superb arc performance makes it easy to produce fast, strong, uniform welds for all types of hardsurfacing and repair work.
Send for free 24-page illustrated booklet.
MARQUETTE Gives You . . .
LOW INITIAL COST and negligible maintenance cost. No moving parts to wear out.
LOW COST OPERATION. High power factor and extremely low idling cost.
FAST, SIMPLE OPERATION. A tap for every heat . . . a heat for every job.
AUTOMATIC VOLTAGE CONTROL. Never any delay or bad welds because of improper voltage.
NO "MAGNETIC BLOW." Welds in deep angles and grooves.
ALL-ASBESTOS INSULATION and EXTRA STURDY CONSTRUCTION. Built to stand up under hard, 'round the clock usage.
COMPLETELY EQUIPPED. Nothing more to buy.
FIVE MODELS. 150 to 400 amperes. Listed and approved by Underwriters' Laboratories, Inc.
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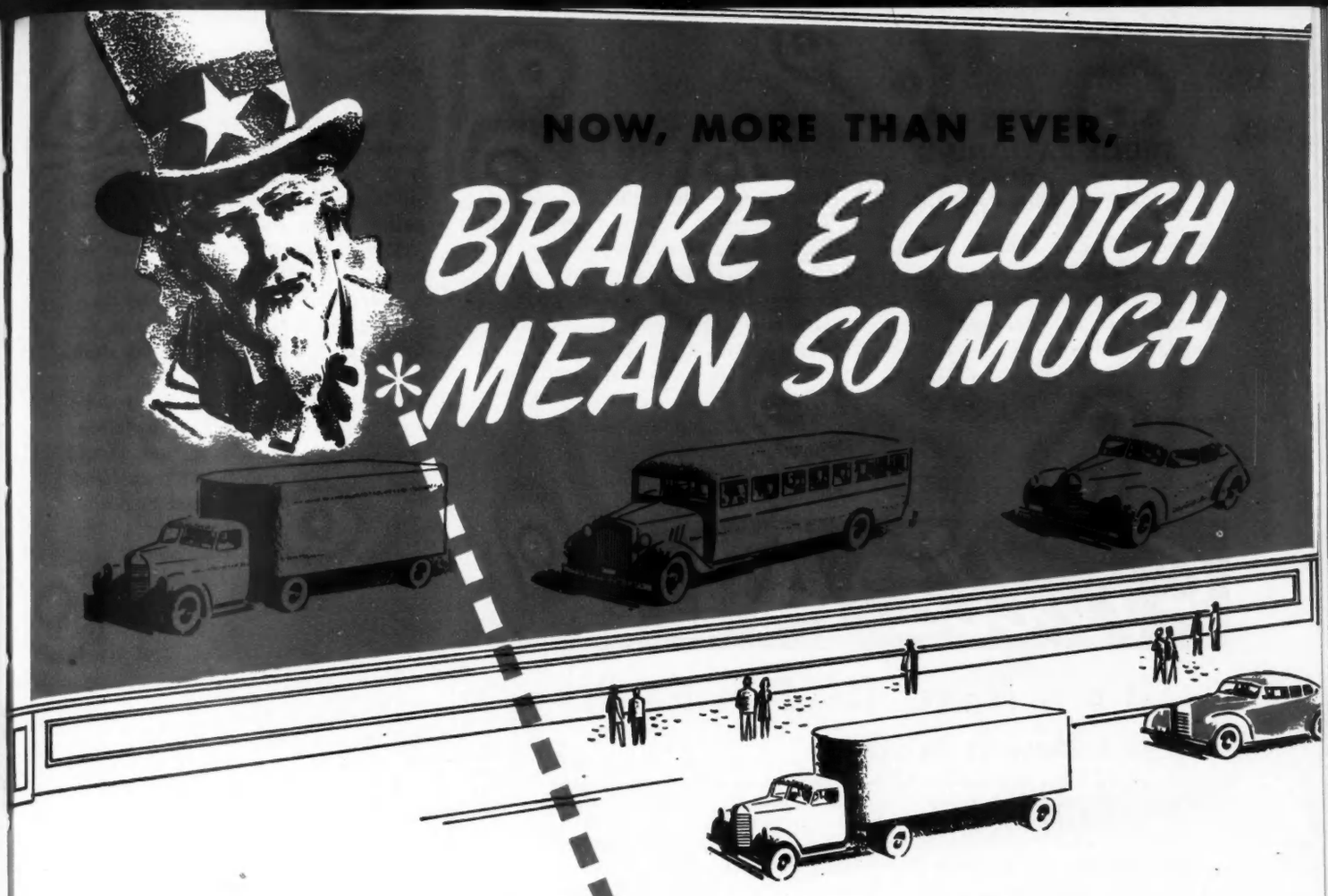

Transportation is vital to Victory. Brakes and clutches are vital to transportation. Good brakes and clutches, in perfect operating condition. Not only for smooth starts and safe stops, but for longer tire life. Grey-Rock's 3-Point Plan is a standard guide in inspecting, adjusting, or relining brakes. For the utmost in safety. For saving time. For more time on the *road* and less time in the *shop*. For better maintenance of today's stepped-up schedules. Yes, *brake and clutch mean so much*. Ask your jobber about Grey-Rock's 3-Point Plan. UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., MANHEIM, PA.

NOW . . . MORE THAN EVER . .
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BALANCED BRAKE LININGS

BLOCKS • CLUTCH FACINGS • FAN BELTS • HOSE

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KEEP VICTORY'S SCHEDULE WITH GREY-ROCK'S 3-POINT PLAN

NATIONAL SAFETY COUNCIL STANDARDS —quickest, surest, safest check on brake inspection, adjustment and reline jobs.

GREY-ROCK ENGINEERING METHODS—the expert way to do good brake jobs faster and better. Every brake is diagrammed in the big Grey-Rock Service Guide.

GREY-ROCK BALANCED BRAKESETS and Truck and Bus Blocks are the correct nationally-advertised Relines worthy of good service. Famous Vee-Lok Clutch Facings are best for every vehicle.

SIX MONTHS OF TRUCK RATIONING

(CONTINUED FROM PAGE 156)

for new vehicles will be promptly recognized, and that the rejection of applications deemed unimportant will be fairly and justly done and with the competent advice of persons of long experience in specialized fields.

Summary

No claim can be made that the truck rationing system, necessarily built as it is, in large part, upon the element of human nature, has been made perfect in its first six months. Nevertheless, it works, and efforts continue unremittingly, through written instructions, correspondence and personal contact, to improve the standard of judgment in both the headquarters and field staffs.

The pool of new commercial motor vehicles is being conserved. Without rationing, it would already have completely disappeared.

Vehicles are going only into the hands of users who need them directly or indirectly to promote the war effort, or for purposes of essential public health and safety.

Motor transportation has not yet been hampered by the drastic cut in the supply of new vehicles, and there is no indication that it will be in the immediate future. There is still slack to be taken up.

Rationing is helping to reduce wastefulness in motor transportation, and thereby teaching lessons of efficiency which will be of permanent benefit to the industry and to American economy in general.

Rationing is an emergency handling of an emergency problem. It is necessary only because of the need for the winning of the war. The sooner the war is won, and truck rationing ends, the better.

END

(Please resume your reading on P. 30)

Tells ALL!

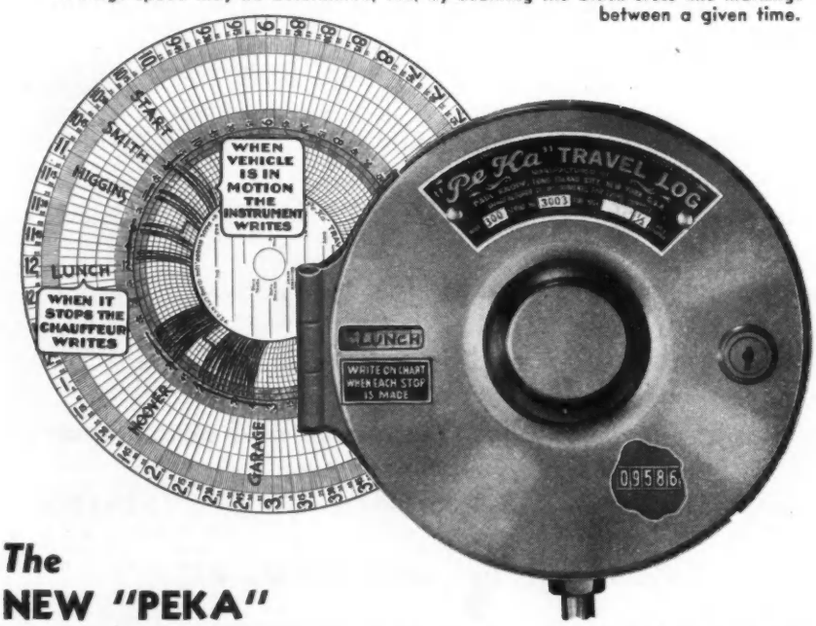
It's a Road *DICTOGRAPH*

Here's How It Works:

Your driver writes his name or time clock number when starting. Through the day "PEKA" keeps an accurate record of the truck's activities. It shows the actual starting time; takes notes on the number and duration of stops.

When the truck stops, the driver writes—when rolling, the instrument writes.

Average speed may be determined, too, by counting the black cross line markings between a given time.



The NEW "PEKA" TRAVEL LOG

NOTES

- Time of start and finish of daily run.
- Actual time of deliveries.
- Distance traveled between each stop.
- Number of stops and their duration.
- Average speed.
- Total number of miles covered.
- Motor hours.

The "PEKA" Travel Log is the result of requests by large fleet owners to develop a recording device that would give the actual facts of the daily activities of their trucks.

Furnished in 12-24-72 hours recording, with or without a mileage counter. Charts are eight inches in diameter.

Guaranteed for one year.

Send for complete details—also information about our Dash Board Odometer, Hubodometer, Tachometer and Counters.

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Post-War Highway Project Started

Brigadier General Philip B. Fleming, Federal Works Administrator, announced that the first actual engineering work on post-war public construction—a projected highway building program to cost nearly $500,000,000—is well under way.

The engineering work, extending from conception of the improvements through surveys and the preparation of detailed plans and specifications ready for the contractors' bids, is going forward as a joint Federal-State undertaking. It is being financed from a special $10,000,000 fund which the Congress authorized in the Defense Highway Act of 1941 with the requirement that the states match funds for projects according to the usual Federal-aid plan.

Thomas H. MacDonald, Public Roads Commissioner of the Federal Works Agency, reported to General Fleming the approval of projects, including the drafting of engineering plans, in the seven states of California, Massachusetts, Mississippi, Missouri, New Jersey, New York, and Oregon, and in the District of Columbia. Additional projects are under consideration by the Public Roads Administration, Mr. MacDonald added. Actual construction will begin after the war.

General Fleming made it clear that this program is only part of the Federal-aid highway construction and improvement program to be undertaken after the war.

Herrington Director Aviation Corp.

Tom Girdler's place on the directorate of The Aviation Corporation has been taken by A. W. Herrington, Board Chairman of Marmon-Herrington, while Girdler will devote his time, chiefly, to the operation of Consolidated, and Vultee Aircraft, both of which are Aviation Corporation affiliates. Girdler will still be available to the parent corporation, for consultation.

LOOK AT THE BOX

Then look at what's inside it!

In war or peace this trade-mark is for your protection. Make use of it—be sure you see it.

The trade-mark "TIMKEN" is found on every carton containing a genuine Timken Bearing. It's there for your protection and convenience.

But to make doubly sure you are getting a genuine Timken Bearing look for the same trade-mark on both cup and cone.

Go one step further—always deal with an Authorized Timken Distributor.

TO ASSURE VICTORY
BUY UNITED STATES WAR SAVINGS BONDS & STAMPS

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO
Service-sales Division

TIRE STORAGE RECOMMENDATIONS

RECOMMENDATIONS for the proper care of tires when removed from truck equipment for purposes of storage or when the truck is stored with the tire on the wheel, are presented here on the basis of experience in both Canada and the United States and from authoritative tire company sources. Observance of these recommendations is particularly important in the light of experience with tire failures resulting from improper storage practices of uninformed truck owners.

This Speed Wash Brush Cuts Washing Time in Half

DOES A BETTER JOB AND SAVES THE FINISH

Durable protective bumper all around the edge.

Speed-Wash fountain brushes are used in scores of commercial fields. Users include: Southwestern Greyhound Lines, Kroger Grocery and Baking Co., Shell Oil Co., Coca Cola Co., United Parcel Service.

Tufts are hand drawn with rust proof wire.

Handle is light weight electric welded steel tube.

Eight evenly spaced jets provide a steady stream of clean water.

Connects with any standard size hose coupling.

Brush is easily detachable from handle, economical to renew.

ADDING the Speed-Wash to your washing equipment is like hiring another man — WITHOUT PAY.

It's an actual fact, proved in hundreds of cases, that the Speed-Wash cuts wash job time between 40 and 60 per cent. Here's the reason: One man does the complete work of soaking, scrubbing and rinsing in ONE operation — without changing tools and without interruption. The ease with which these three jobs are done together allows the Speed-Wash to be a man-sized tool, cleaning a 12″ path with each stroke.

Unique Construction For Faster, Better Work and Longer Life

The Speed-Wash fountain brush is made with first quality horsehair tufts that are hand drawn into the block with rust proof wire. They cannot come out or come loose. Eight evenly spaced jets provide a steady stream of clean, fresh water. Tufts are always clean and free from grit. Sturdy bumper protects against marring finish. Brush is detachable from the handle and renewable at low cost. Handle is an electric-welded steel tube which weighs about the same as aluminum. Handle socket is at one end and standard hose connection at the other.

$9.45

Post Paid if cash accompanies order.

Order today. Priority rating of A-10 or better will insure prompt delivery. Send check or money order to . . .

MILWAUKEE DUSTLESS BRUSH CO.
526 N. 22ND STREET MILWAUKEE, WIS.

Tires, like the truck itself, require special treatment and conditions injurious to the mechanical parts and body of the vehicle are also injurious to the rubber. Therefore rules applying to protection of automotive equipment apply to protection of tires. Storage space should be as weatherproof as possible. Rain, snow, direct light, sun and excessive salt or acid fumes in the air are destructive agents, in long storage. Cracks and crevices that admit even small quantities of the elements become important because they play, day after day, on the same spot of the vehicle and lead to deterioration of the finish, fabric and rubber.

If the entire vehicle is stored, it should be jacked up to raise the tires off the floor. Tires should be deflated to about 10 lb. pressure, or just sufficiently to keep tire and tube in distended position and storage should be in cool, dark, dry rooms.

If the truck is not stored in a suitable place, it is desirable to remove the wheel and tire assemblies which should be placed in storage as recommended above. In this case identify them with the respective truck serial number on the inside of the wheels. Pile the tires flat and not upright.

The three major elements to which tires are allergic are:

1. Sun checking.
2. Elements.
3. Cold weather checking.

Sun Checking

Whenever possible, tires should be removed from vehicle and stored in a dark cool place. This is because rubber, when exposed to sun rays, is subject to fine check lines that run in many directions. This condition is not too damaging to tire life if the exposure period does not run over six months. If there are windows adjacent to where tires are stored these windows should be painted blue. Keep tires away from water, oil and strong air currents which convey ozone, an element in the air that is detrimental and causes checking. If stored in this manner, tires may be preserved for a considerable length of time and not reveal failures when placed back in service.

Elements

Reference to elements means, specifically, the "ozone danger" referred to in the above paragraph. Ozone

(TURN TO PAGE 162, PLEASE)

Save Copper!

Have Your USED BATTERY CABLES *Factory Re-Conditioned* by AUTO-LITE · *Sterling*

● Car and truck operators are faced with the possibility of a replacement battery cable shortage. The normal supply of replacement battery cables is not on hand, because copper is one of our most critical metals, and no copper has been allocated for their manufacture since March 1st.

You can protect yourself, and your operation, by taking your used battery cables to your Auto-Lite Sterling distributor and ordering them to be Factory Re-Conditioned by Auto-Lite Sterling.

Battery Cables will wear out this year, as always. With Auto-Lite Sterling Factory Re-Conditioned cables you can keep needed cars and trucks running—prevent damage to ignition systems and batteries caused by makeshift cable repairs.

See your nearest Auto-Lite Sterling distributor—or write for complete information.

THE ELECTRIC AUTO-LITE COMPANY • WIRE DIVISION
PORT HURON, MICHIGAN

TIRE STORAGE RECOMMENDATIONS

(CONTINUED FROM PAGE 160)

content in the air depends on atmospheric conditions. Unfavorable atmosphere can be the most damaging to tires. Constant exposure to ozone causes a rapid deterioration of rubber parts. First sign of ozone attacks are thin hairline cracks. These cracks generally begin at two points in the exact center of the tread and are referred to in the tire industry as groove cracking. Cracks also appear at the point where the road surface tread ends. This is referred to as buttress cracking. Frequently this cracking will show up in six months. When a truck is placed in service, cracks open up to great depths and result in blow-outs and rapid tire deterioration. Unfavorable ozone conditions in the atmosphere are more prevalent in northern parts of the United States than in the southern parts because where there is more sunshine there is much less ozone content in the atmosphere.

Cold Weather Checks

Cold weather checks are similar in appearance to sun checks, but upon closer examination are much deeper. To prevent this reaction in tires, it is necessary to deflate them to approximately 10 lb. of pressure as previously stated and place stands under the axles to remove all weight from the tires. The vehicle should be stored with the same care recommended for the tires and if possible tires should be covered with waterproof bags.

Tires stored according to these recommendations will keep in good condition for approximately two years. On the other hand, tires placed in service after being subjected to acid fumes in a room where batteries are charged or stored, will have only about a 5000-mile life. Tires left on trucks and exposed to all climatic conditions without taking any precautions whatsoever for one year will have only about one-fourth the life of a new tire. Also, if these precautions are not taken, the rubber will dry out and checking and cracking will appear within a few months. Once cracks set in they enlarge and when the tire is put in service premature failure results.

Tire research engineers state that under no circumstances should an operator dress or paint any tire with any material other than what is recommended by the tire manufacturer.

WESCO
TIRE CHAINS
WHEN IT SNOWS . . . WAR SCHEDULES CAN'T WAIT
Conserve Your Tire Chains
A truck or car is no more dependable than its tire chains . . . when it snows—and tire chains are hard to get due to necessary war restrictions on steel. So here's a friendly tip from WESCO, your tire chain manufacturer: conserve the chains you now have wherever possible.
KEEP YOUR CHAINS
• Clean • Dry • Repaired • Handy
Use chains only when necessary. Take them off for clear road immediately. If your present chains are WESCO'S remember—WESCO Tire Chains are great in emergencies—and that includes the War Emergency of Conservation.
WESTERN CHAIN PRODUCTS CO
1801 W. Belmont Ave.
Chicago, Illinois
U.S.A.
U.S.A.

Safety Gas Tank Sale Controlled

The sale of American safety gas tanks is subject to War Production Board restrictions, the American Safety Tank Co. announced. The order which came from the Automotive Division of the WPB was worded as follows:

"We wish to advise that the Safety Gas Tanks described in the enclosed cut become a part of that equipment when installed, and are therefore considered as functional equipment under the terms of the above order.

"These tanks as described may not be sold to consumers or to any person as extra tanks, and they may only be sold to a consumer under the terms of the Order L-158. In other words, if the purchaser has a damaged gas tank he may purchase this tank with the proper certification or by returning the old tank when he purchases a new one.

"If a person desires to purchase one of the described Safety Gas Tanks as an extra tank or for any other reason except replacement of the gas tank, he must make appeal by letter stating all the facts to the War Production Board, Washington, D. C."

The Army-Navy "E" Pennant which flies over the New Britain plant today for notable performance in the production of machine tools, aircraft engine parts and projectiles, is a vivid reminder, not alone of the pace we have set, but the goals still ahead.

In conferring this award for high achievement in the production of war equipment, Robert P. Patterson, Under Secretary of War, has stated . . . "The men and women of The New Britain Machine Company are making an outstanding contribution to victory. Their practical patriotism stands as an example to all Americans, and they have reason to be proud of the record they have set."

For you mechanics on the home front, in fleet shops, who have the important task of keeping America's critical motor transportation rolling, New Britain is also producing Automotive Hand Tools. These are the modern Tools of Greater Strength—Better Fit that enable you to do your repair job more accurately and swiftly. The same high standards of precision and workmanship which have brought New Britain the Army-Navy Award for excellence in the vital field of war goods production, is your assurance that Hand Tools bearing the New Britain name set a standard you can look to confidently. The New Britain Machine Co., New Britain, Conn.

NAPA National Automotive Parts Association — Assurance of Quality

38 NAPA warehouses across the United States carry master stocks of New Britain Tools so that your jobber is no more than a few hours away from any tool you may require.

New Britain TOOLS

GREATER STRENGTH · BETTER FIT

Safety Contest Winners Honored by Electric Auto-Lite

Twelve winning truck fleet safety directors entered in the Eighth Annual Safety Contest sponsored by the American Trucking Associations, Inc., have been presented with awards by The Electric Auto-Lite Company in recognition of their fine effort in helping keep American highways safe during this critical war period. An annual feature, Auto-Lite's presentation of awards took place at the American Trucking Associations Convention in St. Louis on October 20.

First place award, given to three local and four long distance truck fleet safety directors, was a handsome engraved chronograph wrist watch. A desk set, with two fountain pens and a perpetual calendar was Auto-Lite's gift to each safety director who finished second in the four long distance classifications. All awards this year were based on ATA classifications established according to miles operated by the fleets.

Those receiving first awards were: Harry Ritscher, Monmouth Ice Cream Company; Clayton R. Exner; F. G. Daub, Castles Ice Cream Co.; Julius Caussion, Silver Eagle Co.; Lawrence W. Falwell, C. Warren Falwell, Jr.; Walter F. Smith, Pierce Auto Freight Lines, Inc.; Kenneth R. Field, Consolidated Freightways, Inc.

Those awarded second prizes were: Harry E. Grimes; C. W. Kelley, C. W. Kelley Transport and R. J. Barry, Galveston Truck Lines tied in Class B4; Fred R. Suddarth, Kaw Transport Co.; Harold Willings, Huber & Huber Motor Express, Inc.

Auto-Lite participation in the Ninth Annual Safety Contest sponsored by the American Trucking Association was announced at the convention. Suitable first and second place awards will again be made to truck fleet safety directors. The new contest, which started August 1, is considered to be especially significant in view of the vital importance of continued truck operation.

Highway Traffic Continues Decline but Truck Traffic Holds Up

Traffic on rural highways declined 49 per cent in the gasoline-rationed area and 27 per cent in the unrationed area in August compared with the same month a year ago, the Public Roads Administration of the Federal Works Agency reported today following a preliminary summary of the records of more than 460 automatic traffic recorders operated by 39 state highway departments. The total decline for the 39 states was 36 per cent.

Gasoline tax collections in 31 states in August, representing fuel consumption mainly in July, also were reported. These totaled $47,574,000 or 20 per cent less than a year earlier. In 10 rationed and 21 unrationed states, collections were down 25 and 17 per cent respectively.

As indicative of the near elimination of pleasure driving, the report cited supplementary records showing the following decreases in August passenger car traffic: 17 toll facilities from Maine to Virginia, 42 per cent; Sumner Tunnel, Boston, 30; Cross County Parkway, Westchester County, N. Y., 64; Pennsylvania Turnpike, 67; Pensacola Bay Bridge, Florida, 34; and 16 toll bridges in Kentucky, 29 per cent.

•Pleasure driving is virtually non-existent in the east, Public Roads Administration officials believe, and is rapidly disappearing in the rest of the country as a result of voluntary conservation. Continuing passenger-car traffic is largely essential travel, particularly in the east, and consists almost altogether of short trips, officials say.

Business travel, on the other hand, is up over a year ago in urban areas, or, at most, shows only a slight drop. Truck and bus traffic was up 1 per cent through Sumner Tunnel and was 51 per cent greater over Pensacola Bay Bridge. On the 17 toll facilities it was off less than 1 per cent. These facilities included the George Washington Bridge and the Holland and Lincoln Tunnels in the New York City area which carried 13 per cent fewer trucks and 12 per cent more buses.

Truck and bus traffic on the Pennsylvania Turnpike increased 11 per cent, but was off 26 per cent on 16 toll bridges on rural roads in Kentucky.

The voluntary reduction in total traffic is indicated by a review of counts unaffected by rationing. The 27 per cent decline on rural roads in the unrationed area in August compares with a 25 per cent decline in July, 22 in June, about 15 in May, 15 in April, 11 in March and 8 in February.

COMMANDOS
FOR THE
TOUGH TRUCK
ASSIGNMENTS
Eberhard
HINGES
LOCK HANDLES
LATCHES
DOOR IRONS
DOOR CONTROLS
SEAT IRONS
LOCK HANDLES
SEAT PEDESTALS
REFRIGERATOR LOCKS
PANEL DOOR LOCKS
VAN BODY LOCKS
SLIDING DOOR LOCKS
LADDER HOLDERS
ETC.
In every raid upon the enemy, "Commandos" have proved that they "dish it out" and "take it"—hard, fast and furious.
In thousands of hauling operations Eberhard truck hardware has "stood up" successfully under more difficult service than ever before encountered.
Trucks never carried such overloads or traveled so many miles in so few days. Military vehicles were never before subjected to such gruelling tests.
Through it all Eberhard equipment has stood up amazingly well and several stock items are now virtually standard equipment on military and semi-military vehicles.
Truly Eberhard truck items have well earned the title of "Commandos" in this emergency just as they have long enjoyed a reputation for excellence in the general truck and vehicle field.
EBERHARD Long Run
TRUCK BODY FITTINGS
E
EBERHARD MANUFACTURING CO.
Division of the Eastern Malleable Iron Company • CLEVELAND, OHIO

GOOD

for a long life of hard work

Every Willard Commercial Battery is built extra-strong throughout for a *long life of hard work.* Every one not only meets—but exceeds—S.A.E. requirements. And Willard's "Safety-Fill" construction prevents over filling—gives sure-fire protection against destructive acid-spray and corrosion. Write for complete specifications.

SAFETY-FILL

Willard

COMMERCIAL BATTERIES

-have the power to carry on!

WILLARD STORAGE BATTERY CO. • CLEVELAND • LOS ANGELES • DALLAS • TORONTO

The Arrow Motor Transit Co., of Chicago, Ill., and Fort Wayne, Ind., is participating in the drive to boost the sale of War Bonds by painting all of its equipment red, white and blue. Each unit carries a different patriotic design to help promote the sale of War Bonds. It costs the company $15 a side or $30 per trailer unit for the paint job, a little more than a straight paint job. The patriotic designs are illustrated above. These were done in the Chicago terminal. Favorable customer reaction has been noted.

Two Suggestions . . .

for Operators with Governor Problems

● Now that traffic speed on the highways has been limited, more and more operators are seeking speed governors to assist them in staying under the limit.

Though Pierce capacity is now devoted 100% to war production, we want to help our friends in the transportation industry in every way we can. To this end, there are two things we can do:

1. We can Reset and Recondition Your Present Pierce Governors

Many operators will find their motors equipped with a Pierce Flyball Governor. We will be glad to reset it if you will send it in to the Pierce factory. Or if it needs reconditioning for efficient operation, send it in with the necessary preference rating certificate. It will come back to you ready to give service just as satisfactory as when the governor was new!

2. If You Need a New Governor . . .

Pierce does have available a standard flyball governor model that can be mounted on any engine to drive from the fan belt. While this model was designed primarily for industrial application, and is therefore not of the enclosed, tamper-proof style,* it is unexcelled for accuracy, positive action, dependability and long-life. It will govern any vehicle perfectly. In many cases, today, it will be completely satisfactory since most drivers are cooperating wholeheartedly in observing the speed limit. This governor will help them do it. It's available with the necessary preference rating certificate.

HOW TO MAKE YOUR GOVERNORS LAST!

Like others manufacturing for war needs, Pierce production is for war and essential industry. For this reason new governors can be supplied only on a priority basis. But Pierce calls attention to these easy measures which will make your present Pierce Governors last and give the best service.

- **CLEAN GOVERNORS** once a month with kerosene, gasoline, or prepared cleaner.
- **INSPECT AND CHECK GOVERNORS** each week when in continuous operation.
- **CHECK OIL LEVEL** every day in manually lubricated governors. SAE 20 (1) is recommended at this time of year.
- **LINE UP** driving pulleys or gears accurately when reassembling governor after cleaning.

*Pierce does build an excellent, tamper-proof flyball governor. However, we regret that war restrictions make it unavailable now. After the war, though, it will be ready to serve you again better and more efficiently than ever!

THE PIERCE GOVERNOR COMPANY
1611 OHIO AVENUE • ANDERSON, INDIANA

The Universal type Pierce Flyball Governor is driven from the fan belt, and can be installed on any make or model of bus engine where a direct driving outlet is not provided. This model is still available with the necessary preference rating certificate.

Pierce Governors
STANDARD SINCE 1913

Trucks Maintain Supply Lines Upon Which Large Cities Depend

Serious food shortages would occur in many homes if trucks were interrupted in their maintenance of food supply lines to American cities, figures compiled by the U. S. Department of Agriculture reveal.

Two-thirds of all the livestock received at the nation's principal stockyards make the journey from farm to slaughterhouse by way of motor trucks. In 1941, records of the department reveal, 69 per cent of the cattle, 67 per cent of the calves, 70 per cent of the hogs, and 34 per cent of sheep and lambs moved to market over the highways.

Twenty-four of the largest cities in the country receive their entire supply of milk by motor truck. New York obtains two-thirds of its milk by highway transport; four-fifths of the milk supply to Philadelphia and its metropolitan territory is moved by truck, while nearly half of the milk shipped into Boston and its numerous suburbs is transported by truck.

Approximately half of the total fruits and vegetables received by New York, Philadelphia, Chicago, Boston, New Orleans, San Francisco, and St. Louis is carried by truck from the grower to the consumer.

One-third of the butter used each day on the millions of slices of bread consumed by the inhabitants of New York, Chicago, Philadelphia, and Boston comes over the highways. In the same cities more than 6,000,000 cases of eggs, or about half of the eggs consumed, are transported each year by truck. In the 16 principal cities in the United States trucks transport two-thirds of the total eggs consumed, as well as 98 per cent of all the live poultry that forms the piece de resistance of that traditional American institution—the chicken dinner.

5,000,000 Women Workers Wanted to Handle War Jobs—McNutt

Over 5,000,000 women must be added to the total now employed by the end of 1943, Chairman Paul V. McNutt of the War Manpower Commission told the Commission's new Women's Advisory Committee at its first meeting here today.

Four-fifths of all war jobs can be performed by women, Mr. McNutt pointed out, but a long tradition has limited their

(Continued on Page 168)

IT'S EVERYBODY'S WAR!

BOMBS AND BULLETS, piston rings and tires —all are in this all-out war... And just as no one would think of toting a second-rate bomb to Tokio, so must we all think about the quality of the parts we sell and install. Only the best are justified today, for only the best can give the long service and protection that are necessary, to keep our motors turning.

The Hastings Steel-Vent ring, proved by billions of miles in less critical times, is more than ever the ring to use in times like these.

HASTINGS MANUFACTURING COMPANY
HASTINGS, MICHIGAN
Hastings Mfg. of Canada, Ltd., Toronto
Piston Rings · Piston Expanders · Valv-Rings

HASTINGS

STEEL-VENT PISTON RINGS

U. S. Patent Nos. 2,148,997, 2,175,409

Tough on Oil-Pumping · Gentle on Cylinder Walls

(CONTINUED FROM PAGE 166)

employment. Employment of women is an immediate necessity in some war production centers, he added, because overburdened housing and transportation facilities will not permit further in-migration of outside workers.

The country's womanpower problem, Mr. McNutt said, goes far beyond signing women up for jobs. It includes training, plant living arrangements which take account of the presence of women, and revision of industrial processes to increase the number of jobs women can perform.

The Women's Advisory Committee was appointed early last month by Chairman McNutt to consider important questions concerning the War Manpower Commission program for effective use of women in the war effort. Its membership includes twelve prominent women, long identified with labor, industry, or public activities. The group will submit its recommendations to the Chairman of the Commission, and will work in close collaboration with the Commission's National Management-Labor Policy Committee which advises the Chairman on matters of manpower policy.

Army Opens Tank-Automotive Center

The Army's new Ordnance Tank-Automotive Center was opened officially at Detroit, Michigan, on Monday, October 19, 1942, the War Department announced.

INDIUM'S

Bearing on

Defense

Our long years of pioneering research with INDIUM to develop this miracle metal for the needs of Industry are now rewarded. Today, engineers are enthusiastic about the performance of INDIUM treated bearings and surfaces because only a small percentage of INDIUM greatly strengthens non-ferrous alloys and is the best defense against wear and corrosion. On land, on sea, and in the air, INDIUM proudly contributes to the speed-up efficiency of the Nation's program of Defense.

THE · INDIUM · CORPORATION · OF · AMERICA · Pioneers In. element 49

This trademark assures optimum quality, pure INDIUM of standard effectiveness.

Informative literature on request.

THE INDIUM CORPORATION OF AMERICA

Research and Development Office
60 East 42nd Street, N. Y. C.

Sales Office and Laboratory
805 Watson Place, Utica, N. Y.

Automotive War Production Up 3%

The automotive industry devoted 95.1 per cent of its efforts to direct war work in July, R. L. Vaniman, Chief, Automotive Branch, WPB, announced. This is an increase of 3.5 per cent over June, and an increase of 14.8 per cent over May of this year.

These figures are derived from employment data covering 396 plants owned by 133 companies; 7 automobile manufacturers; 11 truck companies; and 115 parts producers. This group of companies is the one for which comparative statistics long have been gathered, and represents over 68 per cent of the entire industry.

Rubber Technical Staff Appointed

Appointment of a staff of technical consultants on the nation's rubber program was announced by Rubber Director William M. Jeffers. They will serve under Col. Bradley Dewey, Deputy Director.

Those named are:

E. B. Babcock, Akron, Ohio, is chief chemist for the Firestone Tire and Rubber Co.

L. D. Tompkins, Wilton, Conn., is vice-president of the U. S. Rubber Company.

Dr. E. R. Gilliland, Cambridge, Mass., is professor of chemical engineering at Massachusetts Institute of Technology.

W. L. Campbell, New York City, has been actively engaged in war work as vice-president of the American Machine Defense Corporation and as consultant to the Army Quartermaster Corps.

Morehead Patterson, New York City, is president of the American Machine Foundry Company.

Ray P. Dinsmore, Akron, Ohio, is manager of development for Goodyear Tire & Rubber Company.

Jeffers Appoints Col. Dewey

Appointment of Col. Bradley Dewey, Cambridge, Mass., as Deputy Rubber Director was announced by Rubber Director William M. Jeffers.

Colonel Dewey is associated with Dewey and Almy Chemical Company, one of the pioneers in synthetic rubber research in the United States. It was the second company in this country to use rubber latex on a commercial scale and one of the first to substitute synthetic rubber for the natural product. In 1938, Colonel Dewey visited many of the leading European rubber factories and laboratories and returned to the United States to start intensive research in Buna S rubber.

Colonel Dewey is a consultant to the Chemical Warfare Service and a consultant on rubber problems to the Army Quartermaster Corps. He is a life member of the Corporation of Massachusetts Institute of Technology and a member of many scientific societies.

Spicer Heads B.I.M.A.

Donald H. Spicer, President of World Bestos Corp. of Paterson, was elected President of the Brake Lining Manufacturers' Association at its annual meeting held at the Commodore Hotel in New York.

"World's Largest Home Service Bakery" Relies on Thermoid Brake Linings for over 90,000 Stops a Day!

"Once around the world every day"... over *200 million* vehicle miles a year... 90,000 stops a day ... more than 110,000 pounds of bread and other products delivered direct to homes! Those are some of the impressive figures behind Helms Bakeries ("world's largest home-to-home bakery") of Los Angeles, California... a twelve-year-old organization doing an annual business of over $4,500,000.00.

In running up their total of 90,000 stops a day, some of the *more than* 400 Helms vehicles make 300 stops in the course of the day's work... *300* smooth, noiseless, perfectly-controlled stops, according to Mr. Munson J. Palmer, Transport Superintendent. Mr. Palmer—who keeps 'em *holding*, as well as rolling—installed a complete Brake Department, in order to assure precision service on brake linings and drums. With the help of Thermoid engineers he has instituted, in the Department, modern brake-maintenance methods that are the last word in real *Preventive* Maintenance.

Says Mr. Palmer: "We find Thermoid Brake Linings dependable and long-wearing. They give us fine service, with no scoring of drums.

"We like the brake maintenance system brought to us by Thermoid engineers, too. We do not have scored drums—no pulling of rubber—no noise, and a complete job when it leaves our shop. The brakes are 100%, with no guess work, in using this system.

"We also use Thermoid Clutch Facings, Fan Belts, Radiator Hose, and Booster Brake Hose with satisfaction."

Whether you operate one unit or several hundred you can rely on Thermoid Brake Linings for safe, smooth stopping at lowest cost per mile... as Helms' experience demonstrates. Try Thermoid *now*, under your toughest conditions. The results will speak for themselves.

Thermoid

Pledged U.S. TRUCK CONSERVATION CORPS
JOIN NOW!

Custom-Built Brake Lining Sets • CBB Sets • Thermo-blocks for heaviest duty

★ THERMOID COMPANY ★ *Trenton, New Jersey* ★

FREE PUBLICATIONS

(CONTINUED FROM PAGE 56)

a result the treatment is definitely practical and can be clearly understood by any mechanic. The numerous detailed, sectional illustrations and the specific recommendations for avoiding premature carburetor wear make this manual a very valuable addition to every fleet maintenance man's library. Write L51 on the post card for your free copy.

L52. Brake Adjustment Manual

Fleet maintenance men often have several books on file on a given subject because the contents may be presented in different interesting ways. The feature of this brake adjustment manual is the many large illustrations showing detailed views of the different brake types with three additional views showing the right and wrong installations and adjustments. The data on each type of brake, mechanical and hydraulic, is concisely but thoroughly presented and include progressive steps on adjustments. Trouble shooting is included in clear "cause and remedy" style. Write L52 on the post card for your free copy.

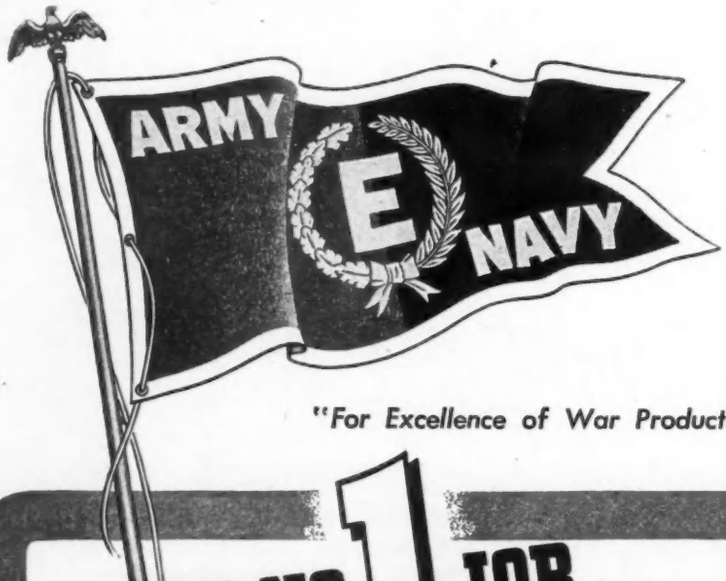
OTHER FREE PUBLICATIONS

L53. All-Weather Traction Bulletin

A new bulletin has ju t been received on the latest development in traction sanders, which should be of timely interest to all fleet operators. Illustrations show installation and principle of operation on trucks. Complete description and specifications are given. Write L53 on the post card for your free copy.

L54. Colloidal Graphite Bulletin

The use of colloidal graphite as a lubricant for running-in internal combustion engines, compressors and other mechanical equipment is explained in a new bulletin just released. Fleet maintenance men who are doing engine rebuilding will find this information of value. Write L54 on the post card for your free copy.



"For Excellence of War Production"

OUR NO. 1 JOB . . .

The Army-Navy "E" burgee that flies over the Packard Electric factory means more to us than an award for work well done. It is a constant reminder of the work that lies ahead . . . building more and more equipment to meet the requirements of America's planes, tanks, trucks and military vehicles of all kinds. No other considerations, no obstacles, can stand in the way of this vital assignment. It is our No. 1 job, and we will see it through. Packard Electric Division, General Motors Corporation, Warren, Ohio.

Packard
REG. U.S. PAT. OFF.
TRADE MARK

"Working for Victory"

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

NEW PRODUCTS

(CONTINUED FROM PAGE 57)

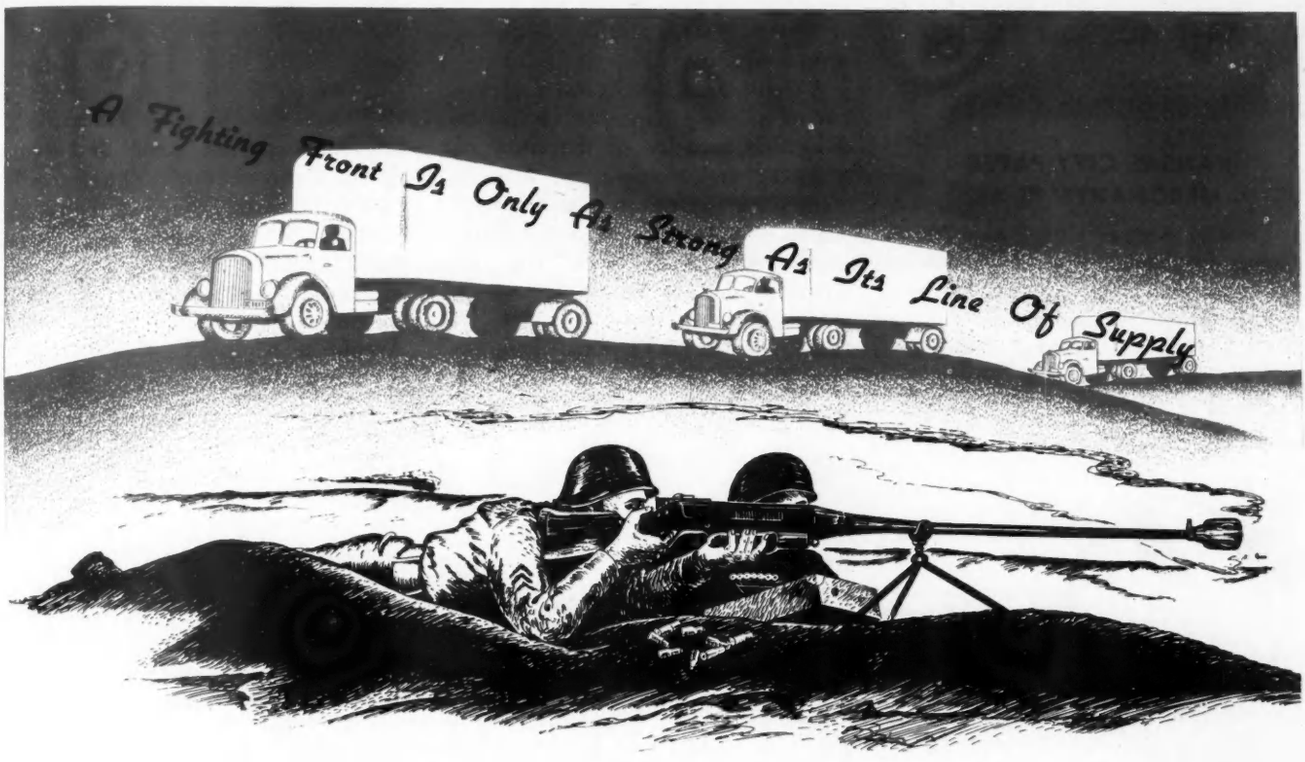
tric tool marker now on the market. It will cut initials, designs or names right on the metal, making a permanent identification. This will help protect tools from theft or loss from mistakes. Manufactured by the New Britain Machine Co., New

Britain, Conn., who claim it is suitable for permanently marking all materials such as metals, glass, wood and plastics. It is furnished complete with 6 foot electric cord, plug and switch.

Use free postcard for more details

END

(Please resume your reading on P. 58)



THE WORLD'S GREATEST MOTOR FREIGHT TRANSPORTATION SYSTEM IS "GEARED FOR WAR"—

Supplies must be kept rolling to deliver the goods for America's fighting forces. Victory demands service.

Check Your Equipment

Keep your truck—trailer equipment "in the pink" to the last efficient mile

See your truck-trailer manufacturer, dealer, or distributor for—

AUSTIN { FIFTH WHEELS "SAFETY PROPS"
LANDING GEARS PINTLE HOOKS
SERVICE PARTS, AND REPLACEMENT UNITS

AUSTIN TRAILER EQUIPMENT COMPANY
MUSKEGON MICHIGAN

JOINT ACTION PLANS

(CONTINUED FROM PAGE 80)

KANSAS CITY PAPER MERCHANTS' PLAN

Plan of Kansas City Paper Merchants for compliance with General Order No. 6, Part 501—Conservation of Motor Equipment.

GENERAL—No special deliveries will be made. If special service is required it will be with buyers own equipment or Transfer Company equipment at buyers expense.

A single order of not less than one ton of printing paper or of 2/3 of the cubic capacity of the truck of wrapping and coarse paper may be made on a separate trip at the Merchants convenience—if by including such order in a regular trip, all orders could not be taken without overloading the truck.

DAILY DELIVERIES — Printing Papers to Printers — Zone "A" — Bounded by Paseo Blvd., on east, Main Street on west, 31st Street on south, City Limits of North Kansas City on north (see map attached). Orders received up to 8.30 a. m., will be delivered the same forenoon. Orders received after 8.30 a. m., will be delivered the following a. m.

Zone "B" — Bounded by Main Street on east, 7th Street Trafficway in Kansas City, Kansas, on the west, the Missouri River and Minnesota Avenue in Kansas City, Kansas, on the north, Southwest Blvd., Roanoke Road, Westport Road on the south and southwest. Orders received up to 12.30 p. m., will be delivered the same afternoon. Orders received after 12.30 p. m. will be delivered the following afternoon.

WRAPPING AND COARSE PAPERS—In Zones "A" and "B" orders received before 10 a. m., will be delivered during the same day at the Merchants convenience. Orders received after 10 a. m., will be delivered the following day.

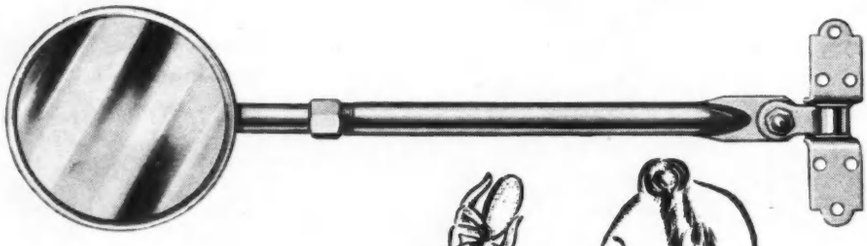
SEMI-WEEKLY DELIVERIES — Zone "C"—Bounded on west by 7th Street Trafficway in Kansas City, Kansas, on the south by Minnesota Avenue in Kansas City, Kansas, on the north and east by the Missouri River. Due to the defense and semi-defense plants in this area orders will be delivered twice weekly in the afternoon, since it adjoins Zone "B," and in the case of North American Aviation (wholly defense) daily in the afternoon if order is urgently needed by them.

WEEKLY DELIVERIES — Zone "D"—Comprising Independence and Sugar Creek, Missouri, and the Inter-City district east of Kansas City, Missouri, City Limits. Deliveries will be made each Monday of all orders received during the week and up to 9 a. m. on Monday.

Zone "E"—All other parts of the incorporated limits of Kansas City, Mo.; Kansas City, Kan., and the northeast corner of Johnson County, Kan., that is within 15 miles of 6th and Main Streets, of Kansas City, Mo.

EXCEPTIONS—It is recognized that printers, being converters, cannot anticipate their needs more than a few hours ahead, and that in order not to discriminate against those located in areas contiguous to the Daily Delivery zones, that exception must be made to them. Therefore,

(TURN TO PAGE 174, PLEASE)



ARROW
MIRRORS
REFLECT
MASTER CRAFTSMANSHIP

The ARROW Safe-C-Mirror is one of the most popular of ARROW'S rear vision units, especially designed to stand up under the tough strain of today's bus and truck operations. The Evalast lens diameter has a full 5½ inch diameter. It's adjustable with standard tube lengths from 15 to 25 inches. Once focused into position it stays focused. Available either in black enamel or olive drab finish.

ARROW offers bus and truck operators, as well as manufacturers of new equipment, a complete line of auxiliary lighting and safety devices built to rigid specifications assuring long, serviceable, economical operation. See your local jobber salesman or write direct to Dept. 147.

Arrow Safety Devices Help Keep Our Armed Forces Rolling.

☆ ARROW SAFETY DEVICE CO., *Inc.* ☆
MEDFORD, NEW JERSEY

HORSEPOWER'S IN THERE PUNCHING, TOO

Pledged
U.S. TRUCK CONSERVATION CORPS

YOUR FLEET is one of the precious links of America's vital transportation . . . the transportation that is essential to war production. Today . . . every fleet that rolls needs longer engine life, added power and performance.

The use of Casite in every engine in your fleet is an important conservation move. It cleans out sludge and gum, keeps valves and rings free, speeds lubrication to close-tolerance parts. The use of Casite means a clean, well-lubricated engine that lasts longer and goes farther on a gallon of gas.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

★ CASITE ★ ★ ★

CLEANS OUT MOTORS • KEEPS MOTORS CLEAN

JOINT ACTION PLANS

(CONTINUED FROM PAGE 172)

printers located in areas contiguous to Zone "A" or "B," may be considered as though they were in Zone "A" or "B."

Zone "A" exceptions are — Associated Publications, Belcher Ptg. Co., Paul Miller Ptg. Co., Eastside Ptg. Co., Capps & Clark, Commercial Lithographing Co., R. A. Allen Ptg. Co., Bankers Check Co., Blevins Ptg. Co., Norfleet Ptg. Co., Snedden Ptg. Co., Dragoo Ptg. Co., Graphic Laboratory, Newton Ptg. Co., Premier Ptg. Co., Roberts Ptg. Co., Southside Ptg. Co., Uptown Ptg. Service, Wheeler Ptg. Co., Wootten Ptg. Co., Wyatt Print & Card Shop.

Zone "B" exceptions are—Goodnight Ptg. Co., Paul S. Phelps Ptg. Co., Interstate Ptg. Co., The Evans Press, May Printing Service Co., Smith Ptg. Co., Buckley Ptg. Co., Lucas Bros., Baldridge Ptg. Co., Chacey Ptg. Co., Plaindealer Ptg. Co., Youman's Publ. Co., Johnston Ptg. Co., Gripkey Ptg. Co., E. W. Wells Ptg. Co., Western Ptg. & Eng. Co.

In the opinion of every paper merchant located in Kansas City and North Kansas City, Mo., the attached plan to which each hereby subscribes, is adequate for the needs of the community, does not to their knowledge, discriminate against any firm, and should develop the conservation asked for by the Office of Defense Transportation.

Berlau Paper House, Bermingham & Prosser Co., Big Four Paper Co., Butler Paper Co., Carpenter Paper Co., W. Evans Co., Graham Paper Co., Midwestern Paper Co., Paper Supply Co., H. H. Smith Paper Co., Standard Paper Co., Tranin Mercantile Co., Wayne Paper & Cordage Co., Weber Paper Co., Zellerbach Paper Co.

WASHINGTON, D. C., MILK DELIVERY PLAN

Pursuant to General Order Office of Denfense Transportation No. 6, Part 501—Conservation of Motor Equipment—issued April 20, 1942, the undersigned, representing management in the Washington (D. C.) Milk Distributing Area, have agreed to the following delivery program for the purpose of complying with the provisions thereof.

1. No special deliveries to retail and wholesale customers except to hospitals and the armed forces of the United States.

2. Elimination of any call-backs.

3. Daytime delivery service retail and wholesale; that no retail or combination retail and wholesale route shall leave the plant of the distributor earlier than 8 a. m., and that no wholesale route shall leave the plant earlier than 5.30 a. m., except to serve the military forces of the United States.

4. Alternate day deliveries to retail customers. (One-half of each existing route to be served double one day—the other half to be served double on the following day, with consolidation of routes for additional reduction of mileage.)

On or before May 15, 1942, items 1, 2 and 3 of the aforesaid delivery program will be fully effective. Alternate day deliveries to retail cus-

(TURN TO PAGE 176, PLEASE)

CARTER CARBURETER
Repairs

CARTER CARBURETER
Original Equipment Parts

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

OFFICIAL STATION

U.S.

TRUCK CONSERVATION CORPS

We pledge that all repair and maintenance work done in this shop will conform with recommendations of U. S. Office of Defense Transportation for the official Truck Conservation Program

Signature.....

.....

CARBURETER
Registered in U. S. Patent Office
PRODUCTS OF PRECISION

Accepted Service

acr

Efficient, Economical Carburetion Is Vitally Important to Truck Conservation

Carter distributors and authorized service stations are backing up the program of the O.D.T.'s U. S. Truck Conservation Corps.

Fleet operators can look with confidence to the specialized service stations displaying *both* the Carter and the "Official Truck Conservation Corps" signs.

CARTER CARBURETOR CORPORATION
St. Louis, Missouri
Division of American Car and Foundry Company

JOINT ACTION PLANS

(CONTINUED FROM PAGE 174)

tomers to be effective on or before June 1, 1942. While accurate and complete figures are not immediately obtainable, it is estimated that effective June 1, 1942, the monthly vehicle mileage will be reduced at least in an amount equal to 25 per cent of the total mileage of vehicles operated during the same calendar month during the year 1941, exclusive of the mileage eliminated in items 1, 2 and 3.

(Signed) M. H. Burchell, R. Finlay, A. B. Fletcher, P. D. Gibson, H. A. Schulteis, A. L. Thompson, committee.

WEST VIRGINIA BAKERS' DELIVERY PLAN

We, the undersigned bakers of West Virginia and bakers from border states operating in the State of West Virginia, do hereby jointly, voluntarily and mutually agree to effectuate, starting May 1, or as soon thereafter as possible, five-day delivery service for baked products sold in aforesaid State.

In order to conserve rubber, gasoline, and other vital materials, we jointly agree to eliminate delivery service of baked products one day each week, preferably Thursday, or according to the wishes of bakers operating in various markets, all subject to uniform change in any given market for the purpose of cooperating with the grocery stores in afternoon closing. By so doing, it is our hope to not only extend our services and products over the longest possible period of time, but to make available the critical materials which normally would be absorbed by the baking industry for the use of the government in its war program.

We further pledge ourselves to every possible economy in the conservation of all materials used by the baking industry.

We further certify to the Office of Defense Transportation our desire to operate in such a manner as to not interfere with any competitor or competitors unpledged to the joint statements contained herein.

Where it is impossible to presently secure the signatures of additional bakers desirous of participating in this plan, we ask for the privilege of submitting their names, in like manner, in the future.

With the single thought in mind of answering the call of our Government to conserve materials for war, this joint statement is respectfully submitted for your approval.

We, the undersigned, do jointly and mutually subscribe to the aforesaid, and affix hereunto our signatures:

Whereas, the Office of Defense Transportation has issued General Order No. 6 for the Conservation of Equipment of Local Delivery Carriers, and

Whereas, acting pursuant to 501.34 of General Order ODT No. 6, a meeting of milk dealers distributing more than 90 per cent of the milk and cream at wholesale and retail in the Fort Wayne Marketing Area was held on Friday evening, June 26, 1942, for the purpose of formulating a plan intended to effectuate the purpose of the current national conservation program, and

Whereas, plans were presented and

(TURN TO PAGE 178, PLEASE)

TIRE VALVES CAN'T BE CHOOSEY

Tire Valves go where the tires go. And on military, commercial and private vehicles, that means through dust, mud and water, through scorching heat and freezing cold. Standard Schrader Tire Valves with air-sealing caps are built for any kind of service, anywhere. The air-tight valve cap shuts out dirt and seals in the air pressure so vital to tire life.

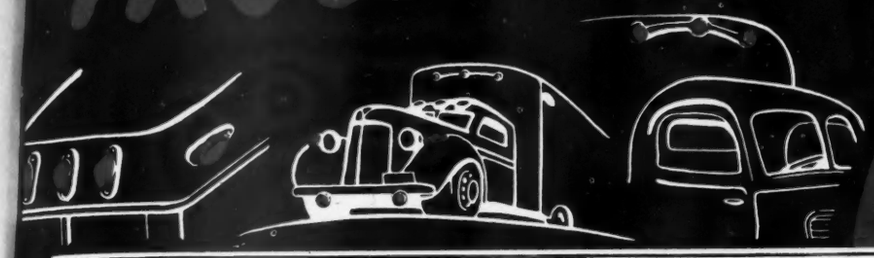
Every ounce of rubber saved is a contribution to Victory. You can *help save rubber* right at your airstand. *Inflate tires accurately* and *seal all valves* with air-tight Schrader Caps.

All Standard Schrader Valve Caps are built with this doubly reinforced sealing unit. Guaranteed air-tight up to 250 lbs. pressure.

Schrader
REG. U.S. PAT. OFF.
VALVE CAPS
GUARDIANS OF THE AIR
THAT HELP SAVE RUBBER

A. SCHRADER'S SON, *Division of Scovill Manufacturing Company, Inc.*, BROOKLYN, N. Y.

FIRST AID for TRUCK CONSERVATION

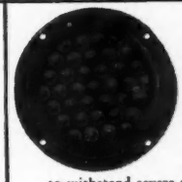


DO-RAY SAFETY LIGHTING and EQUIPMENT

For Safety Lighting and Reflecting Equipment It's DO-RAY All the Way

No. 100 TIGER-EY PLASTIC REFLEX TRUCK DEVICE

Brilliant reflection for hundreds of feet, straight on or at angle. Reduces accidents. Sturdy, efficient, durable — red or amber lens.



No. 1292 NOBBY REFLEX

For trucks, busses or trailers — constructed and designed to withstand severe abuse — red, amber, green or white.

No. 1132 THREE-WAY SENIOR LIGHT

Solid brass strip wiring assembly — positive contact maintained — lens designed to give maximum illumination front and sides — shockproof, waterproof.

No. 1132R FLEX-FIT 3 WAY TRUCK AND BUS LIGHT

Heavy flexible truck and bus light—fits all curved and flat surfaces—contact strips permanently fastened in place—waterproof, dustproof, shockproof.

No. 1173 FLUSH TYPE CLEARANCE LAMP

Latest design lamp. Made of steel. Extreme height only 1⅛ inches. One piece, specially designed lens gives maximum amount of light — red, amber, green or white. Durable Udylite finish.

No. 1136 SWA-BAC FLEXIBLE CLEARANCE LAMP

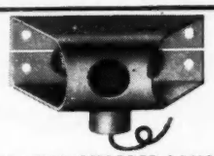
Vibration proof — waterproof — dustproof. Gives with impact — lens breakage reduced to minimum.

No. 400 ZEPHYR CLEARANCE LAMP

For trucks, passenger cars, trailers—base curved and mounted on resilient pad—will fit most any surface—gasket seals lens and eliminates dust from inside lens and on bulb

No. 1203 STREAMLINER CLEARANCE LAMP

A 3-in-line-marker-clearance or fender lamp—resilient pad permits fitting to curved surfaces—sturdily constructed—easy to install.



No. 1106 GUARDED LAMP

3 interchangeable lenses. Correct position of red and amber lenses possible regardless of mounting.

No. 500 5-INCH THIN MODEL G. E. SEALED BEAM FOG LAMP

Throws powerful beam of light—fits all cars with stone apron—easily installed — only one hole to drill — adjustable bolt in lamp housing permits focusing.

No. 600 GENERAL ELECTRIC SEALED BEAM FOG LAMP

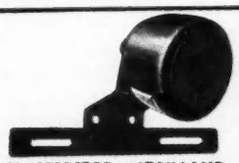
Sealed beam all glass, amber fog light lens unit. Styled to match modern head lamps. Theft proof malleable iron bracket. New, improved door styling.

No. 349 ELECTRIC FLARES AND CONTAINER

Extremely durable. Steady burning. Lens designed to eliminate dark or dead zones.

No. 80 HEAVY DUTY STOP LAMP

Substantially built of heavy gauge steel—waterproof — dustproof. Lens made of high transmission ruby glass. Angle bracket mounting.



No. 1193 STOP and TAIL LAMP

Steel body — Tiger-Ey Hex-Flex lens meets S. A. E. Class "B" specifications.

No. 70 GIANT-LITE

Ideal for trucks with rear doors extending full height of body. Angle bracket designed to permit 4 different mounting positions.

No. 36 TURN LITE

A double faced direction-signal for fender mounting on trucks, busses and trailers. Optimetrical quality at 125 feet day or night. Easy to install — rugged construction.

No. 1330 STURDI-BILT TRUCK MIRROR

Hinge mounting. Adjustable to any position. Bumper guard reduces damage to mirror.

No. 1306 SUPER TRUCK FLARE

Meets all I. C. C. and state requirements. Passes vibration, water, dust and wind velocity tests. Sturdily constructed of 22 gauge steel. Will burn for 18 hours.

Pledged U.S. TRUCK CONSERVATION CORPS

PROTECT those trucks as you never have before to "*Keep 'em fit and keep 'em rolling*". One way to do it is to guard your fleet against accidents caused by improper and insufficient safety lighting and equipment.

Check your trucks now and provide them with Do-RAY *Safety Lighting and Equipment* throughout. Do-RAY Certified Safety Lighting and Equipment passes specifications of S. A. E. and I. E. S. meeting all requirements of I. C. C. There is a Do-RAY product for every safety lighting and reflecting equipment need.

ASK YOUR WHOLESALER OR WRITE

CERTIFIED DO-RAY PRODUCT Tested by RECOGNIZED TESTING LABORATORIES PASSING SPECIFICATIONS OF S.A.E. AND I.E.S. MEETING REQUIREMENTS OF I.C.C. SAFER LIGHT SAFER SIGHT

DO-RAY LAMP COMPANY

1458 S. MICHIGAN AVE. · CHICAGO

SAFETY LIGHTING AND REFLECTING EQUIPMENT

JOINT ACTION PLANS

(CONTINUED FROM PAGE 176)

discussed which would protect the interests of labor, the producers and the consuming public.

Now, Therefore, we wish to submit the following plan to be approved by the Office of Defense Transportation and the Department of Justice.

1. Effective upon approval by the Office of Defense Transportation.

a. Discontinue all special deliveries, both wholesale and retail.

b. No call backs as defined under the order.

c. No more than one delivery on any one day to any one stop, except as excepted by the order.

d. Retail delivery every-other-day, or four days per week. (Under no circumstances shall any retail customer receive delivery service more than four times in any seven-day period.)

e. Daylight delivery — wholesale vehicles not to leave their plant before 5:30 A.M.—retail vehicles not to leave their plant before 7 A.M.

The following distributors hereby place their signature to the above plan on the 29th day of June, 1942:

Allen Dairy Products, Inc., Pleasant Hill Dairy Co., Tonne Dairy, Peoples Dairy, Inc., Beauty Brand Dairy, Knispel Dairy, Chris Bullerman & Sons, Buesching Dairy, Old Homestead Dairy, Martens Dairy, Elzie Redding Dairy, Holle Dairy.

SAN FRANCISCO PAPER & SANITARY SUPPLY DEALERS

In order to comply with the provisions of General Order ODT No. 6, we, the undersigned members of the paper and sanitary supply dealers of San Francisco, offer the following suggested program for curtailed delivery service and submit it to your office for approval by the proper Federal agencies before its adoption by the undersigned.

REVISED DELIVERY SERVICE

Main Business District—North of Market Street to Divisadero, south of Market Street to 18th Street. Orders received up to deadline of 2 p. m. may be delivered same day if possible.

Outlying Districts—Not more than one delivery schedule a day.

General Restrictions Applying to All Districts—Only one delivery per day to any one customer. No call backs. (1)

Special Deliveries—To be discontinued. No deliveries except as outlined. (2)

Samples—To be delivered only by salesmen or on regular delivery.

Country Orders—Orders received by phone or otherwise up to deadline of 4 p. m. may be shipped same day. This deadline not to apply to shipments to our branches nor to customers at cities where our branches are located.

Deliveries by Salesmen—Delivery of customers' orders by salesmen is to be discouraged but in no case will salesmen deliver an order on a better time basis than is provided in regular delivery schedule.

Sidewalk Deliveries — Wherever practicable deliveries weighing 100 lbs. or over to be sidewalk delivery. Any excess delivery service to be discouraged.

(1) The term "call backs" means every call by a vehicle at the prem-

(TURN TO PAGE 180, PLEASE)

In this war, every busy highway is a battle line of America . . . every service garage a strategic repair base . . . every mechanic a valiant fighter . . . every good tool a vital weapon in the fight!

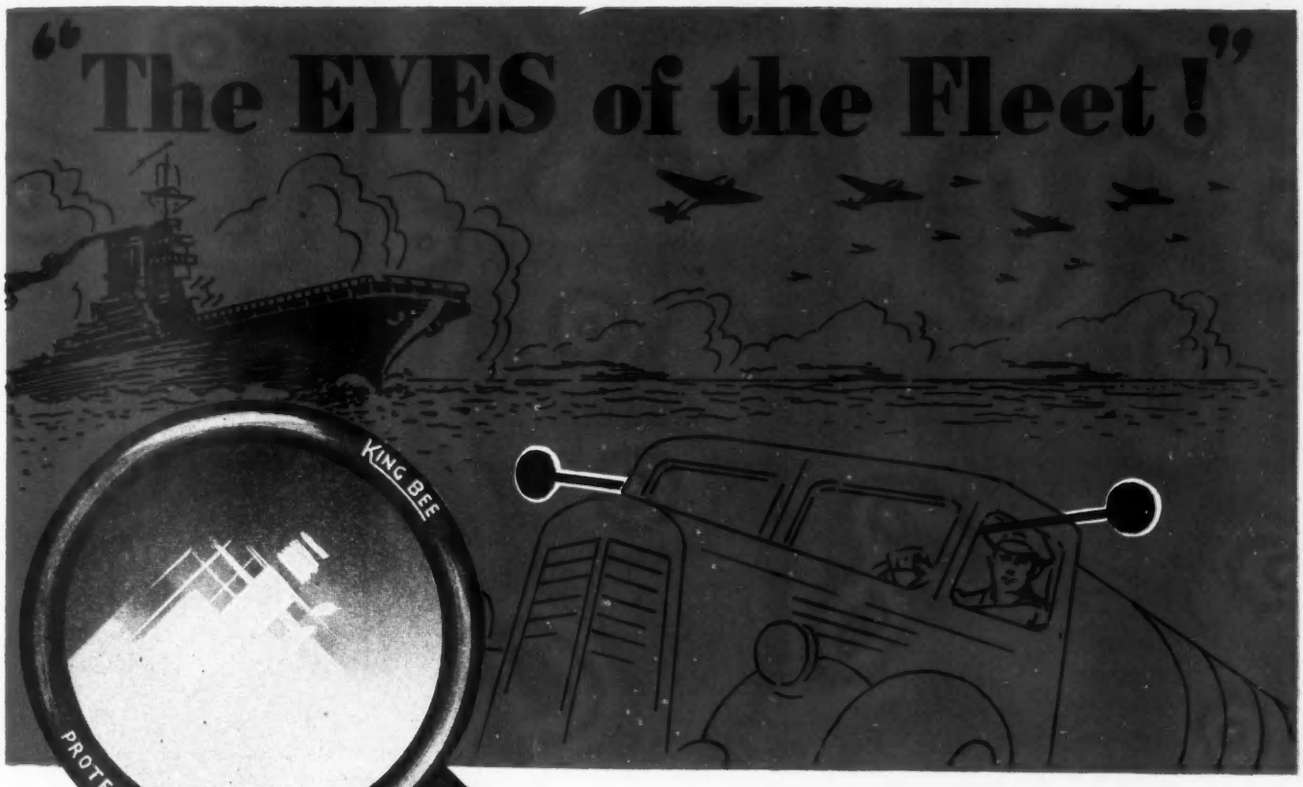
The outcome depends on *you* . . . because America's trucks are not "expendibles" — but *irreplaceables.* And every job of preventive service that saves a breakdown later on — every overhaul and skillful repair that *keeps the tonnage rolling* — is another blow at the Axis — another stroke for Victory.

We know the importance of your job . . . and how well you are doing it despite all handicaps. If you need essential tools we'll do our utmost to supply them. Ask your Snap-on salesman for the latest tool information.

Snap-on Tools
THE CHOICE OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION
8026-K 28th Avenue Kenosha, Wisconsin

"The EYES of the Fleet!"



KING BEE MIRRORS

Serving as the "eyes" of many of the Nation's leading fleets, King Bee Mirrors have proved their superiority in millions of miles of actual service. Their dependable rear view vision prevents accidents—helps maintain fast schedules with maximum safety.

"King Bee" was the original pioneer of the extendable arm truck mirror and still leads the field today!

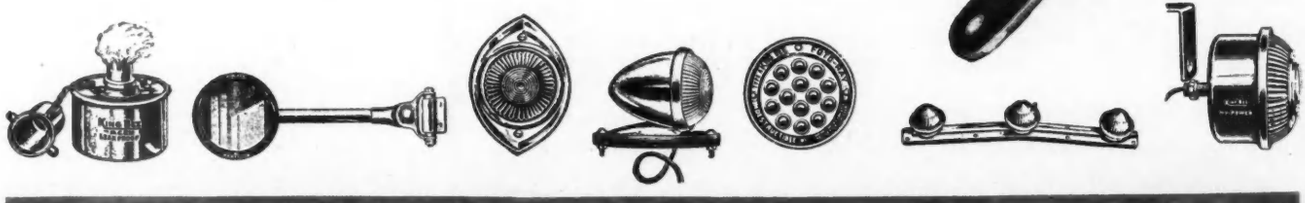
See them at your Jobber or ask any Fleet Operator.

INDIVIDUALLY REPLACEABLE PARTS

Should one part of a King Bee Mirror become damaged, only *that* part—*not* the entire mirror—need be replaced.

King Bee Mirrors are available in a wide selection of styles and mountings to suit any type of truck—they are rust - proof and vibration - proof and are fully extendable and adjustable. Write for Catalog.

"KING BEE on an Automotive Accessory is like STERLING on silver."



AMERICAN AUTOMATIC DEVICES CO.

Manufacturers of the Famous KING BEE *Products*

HARRISON, THROOP AND CONGRESS STREETS • • CHICAGO, ILL.

JOINT ACTION PLANS

(CONTINUED FROM PAGE 178)

ises of any one person subsequent to the first call on any given day, and includes calls made for the sole purpose of picking up property for return to consignor, or for making collections.

(2) The term "special delivery" means a delivery by vehicle made at the special instance or request of a particular person other than as a part of a regular scheduled delivery service.

Respectfully submitted — Blake, Moffitt & Towne, Carpenter Paper Co., Bonestell & Co., Seaboard Paper Co., Pacific Coast Paper Co., Acme Paper Co., Hockwald Chemical Co., Pelican Paper Co., Fulton Paper Co., Atlas Paper Co., The T. J. Cardoza Company, Ltd., West Disinfecting Co., Paul Koss Supply Co., Easterday Supply Company, Inc., Barash & Douglas, James Byrne, Zellerbach Paper Co., Commercial Paper Corporation.

BALTIMORE DAIRY SKIP DELIVERY PLAN

This plan is a modification of the "every other day delivery" plan, to adapt it to the existing omission of Sunday deliveries. It applies to retail deliveries. Wholesale deliveries will be made every day except Sunday as heretofore; provided that wherever possible dealers will also restrict wholesale delivery as well. The plan operates as follows:

Assume that a normal retail route consists of 400 quarts delivered to Districts A and B (A being one-half of the route, B being the other half). All weekday deliveries will alternate: on one day delivery to District A, and on one day delivery to District B. The amount delivered will be a two-day supply. In other words, the entire truck load of 400 quarts will be delivered on ordinary weekdays; but over only one district instead of two. Special treatment is necessary at weekends, to accommodate for the omission of Sunday delivery. To meet this, an extra one-half load of 200 quarts will be carried on Saturdays and on Mondays and delivered to the district which would otherwise have received no milk on one or the other of those days.

The operation of a route may be charted as follows:

Operation of a Route Under Plan

	District A	*District B*
Monday	400	200
Tuesday	—	400
Wednesday	400	—
Thursday	—	400
Friday	400	—
Saturday	200	400

For a more complete understanding, the following chart will show how the plan operates on Customer A (who lives in District A).

Customer A Receives

Monday A.M. — 2 days' supply, for use Tues. & Wed.

Tuesday A.M. .....

Wednesday A.M.—2 days' supply, for use Thurs. & Fri.

Thursday A.M. .....

Friday A.M.—2 days' supply, for use Sat. & Sun.

Saturday A. M.—1 day's supply, for use Mon.

Sunday .....

(TURN TO PAGE 182, PLEASE)

You Can't Control TIRE WEAR without Correcting WHEEL ROLL!

CAMBER
CASTER
TOE-IN
TOE-ON-TURNS
KING PIN INCLINATION

These May All Measure O.K. —and Still Your Tires May Be Grinding Themselves to pieces!

IT'S as plain as A-B-C that if a wheel is prevented by some defect in the chassis mechanism from rolling in a perfect, straight-ahead direction, its tire is hell-bent for destruction, regardless of whether the wheel is in proper adjustment as to camber, caster and toe-in.

Wheels simply cannot travel at a tangent to the forward course of the truck without causing wear and tear somewhere—and that "somewhere" is at the point where the tire contacts the road.

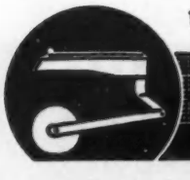
A Wheel-Roll Test Is the Only 100% Safeguard

The only way in which you can be sure that your tires are not being hastened to the scrap-heap by unsuspected chassis defects is to make a test that shows what is happening to each of the tires while the truck is traveling on the road. The only instrument that does this is the Micro-Linor.

By means of a "Tracer-Wheel" which runs alongside of the wheel being tested, the Micro-Linor does what no other instrument has ever before accomplished. It makes a wheel-roll check-up while the truck is actually in motion—and checks all four wheels in a few minutes' time. Follow the lead of big fleet owners! Get a Micro-Linor!

TESTING APPARATUS, INC.
1629 W. Fort Detroit, Mich.

Free CATALOG



MICRO-LINOR
Patented "Tracer-Wheel" Principle

Stop Tire Wear Before it Starts!

Gas wasted daily by trucks with

"RIPE TOMATO ACCELERATION"

would send 202 Flying Fortresses over Berlin *every day* on bombing raids from "Somewhere in England"

One truck in four has "Ripe Tomato Acceleration" —is wasting five gallons of gasoline out of every 25 put in the tank. This means that over a *million* American trucks are squandering *three-quarters-of-a-million gallons* of gasoline every day. Converted into aviation fuel, this would power 202 of our famous Flying Fortresses on *daily* egg-laying round-trip raids on Berlin, from bases "Somewhere in England".

This needless waste can be—and *must* be—stopped! Trucks with "Ripe Tomato Acceleration" must be singled-out, and cured of this unpatriotic, inefficient condition.

Spotting "Ripe Tomato Acceleration" is easy. Symptoms: squashy accelerator, smoke signals from the exhaust, pepless performance on the level, loss of power on the hills, and a gluttonous appetite for oil.

The cure for "Ripe Tomato Acceleration" is simple, and positive. Install American Hammered Piston Rings. A-H is the *one* line with a set-up for each engine condition . . . the only line with a POWER ring for the second groove! Koppers Company, American Hammered Piston Ring Division, Baltimore, Md.

FOR IMPROVED GAS MILEAGE . . . DECREASED OIL CONSUMPTION . . . INCREASED POWER

American Hammered Piston Rings

POWER

a KOPPERS product

JOINT ACTION PLANS

(CONTINUED FROM PAGE 180)

This plan combines the best elements of a number of plans which have recently been studied. The general result is the same as the "every other day delivery" except that it gives the customer the benefit of four days a week delivery. It also gives the driver the benefit of his Sunday off. It is designed to permit continuation of "daylight delivery" at present in force.

Baltimore dairies who will adopt the plan: Biemiller's Dairy, Bowman's Dairy, Inc., Cloverland Farms Dairy, Dunloggin Farm Dairy, Inc., Green Spring Dairy, Inc., Koontz Creamery, Inc., Kress Farm Dairy, Inc., Old Oak Dairy, Inc., Will's Dairy, Wilton Farm Dairy, Inc. Also Essex Farms, Lutherville, Md.

CALUMET-ILL.-IND. AREA MILK DEALER PLAN

Plan for the conservation of rubber, fuel, and motor vehicle equipment in the transportation and distribution of milk and milk products in the Calumet-Indiana-Illinois area. —Acting pursuant to No. 501.34 of General Order O.D.T. No. 6, a meeting of milk dealers distributing more than 95 per cent of the milk and cream distributed at wholesale and retail in the Calumet-Indiana-Illinois Area was held on May 25, 1942 for the purpose of formulating a plan intended to effectuate the purposes of the current national conservation program and of General Order O.D.T. No. 6. At that meeting this plan was presented as one for joint action on behalf of such distributors as would become signatories and parties thereto for submission to the Office of Defense Transportation in conformity with the terms and provisions of the joint statement issued by the Office of Defense Transportation and the Department of Justice, dated March 12, 1942, and the distributors signatory hereto or to a counter part hereof agree and consent to the plan. It is the understanding of the signatories to this plan for joint action that the clearance of this plan and approval by the Office of Defense Transportation is accompanied by the clearance and approval of the Department of Justice.

The plan herein set forth was formulated with an earnest recognition of the need for maximum conservation of the vital materials required by the government in its war effort. It is believed fairly to protect the interests of labor, the producers and the consuming public.

I. DEFINITION OF TERMS.

(a) The terms "vehicle," "special delivery" and "call-backs" as used in this plan shall be the same as defined in No. 501.31 of General Order O.D.T. No. 6.

(b) The term "Calumet-Indiana-Illinois Area" consists of the following:

The municipalities of Calumet City, Lansing and Oakglen, all in Cook County, Illinois; the municipalities of Black Oak, East Chicago, East Gary, Gary, Griffith, Hammond, Highland, Hobart, Merrillville, Munster, Roby, Schererville and Whiting and the Township of Ross, all in Lake County, Indiana.

(c) The term "retail" shall mean and be deemed to include the delivery of milk by vehicle directly to the home of a consumer.

(TURN TO PAGE 184, PLEASE)

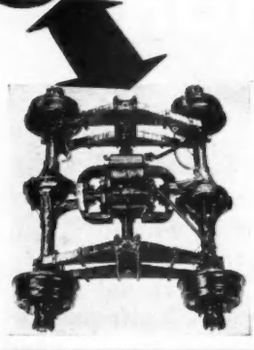
WHAT A JOB! ALL THAT MEN AND MACHINES CAN GIVE!

Here is an accomplishment that is enough to make the old Sourdoughs turn in their graves. Under the urgency of war the unbelievable is being accomplished in record time. Doing their share is a big fleet of trucks with heavy-duty dump bodies and—

THORNTON FOUR-REAR-WHEEL DRIVE

You may not be building an Alaskan highway, but you may be building an airport runway or a vital road, or you may be hauling logs or other heavy loads that are essential today. You need BIG-CAPACITY, HEAVY-DUTY TRUCKS.

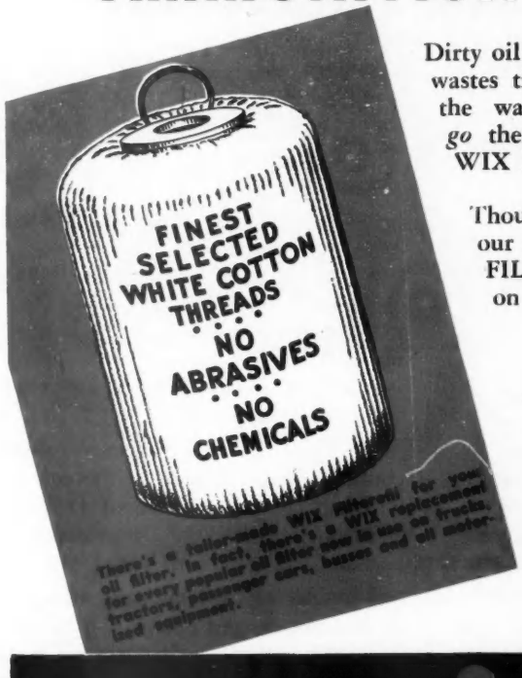
Standard heavy trucks are not available—but don't let that stop you. In the U. S. A. and all over the world 1½ to 3-ton trucks have been converted to husky heavy-duty vehicles that do the job better and cost less. Act quickly while Uncle Sam still approves. Contact your nearest Truckstell-THORNTON dealer or wire the factory direct. Trained men will engineer this equipment right to your PARTICULAR JOB.



Put TWO driving axles under the load instead of one, double the gear speeds, improve springing and load flotation, gain vastly superior tractive ability.

THORNTON TANDEM CO.
8715-8779 GRINNELL AVE. DETROIT, MICH.
Manufacturers also of the THORNTON automatic-locking DIFFERENTIAL
"When you need TRACTION you need THORNTON"

This Is A Motorized War and OIL Is AMMUNITION . . . Use It Wisely!



Dirty oil is Public Enemy No. 1 right now . . . it sabotages vital motors, wastes time and precious replacement parts, and stalls the wheels of the war effort. Today's trucks and busses must *do* more and *go* the distance. Clean, trouble-free lubrication is the answer . . . WIX FILTEREFILS provide it.

Thousands of fleets now using WIX FILTEREFILS are pushing our sales curve steadily upward. The answer is clear . . . WIX FILTEREFILS simply do a better job of keeping oil *clean* and keep on doing it for many more hours in the toughest service.

YES—YOU CAN GET DELIVERIES NOW!

WIX FILTEREFILS are aiding the war effort in numberless ways. We are proud of their service with America's armed forces. Your vehicles are playing a leading role on the home front and require them, too! You can get this lubrication protection service with WIX FILTEREFILS now! The fact that they cost less makes their choice unanimous, for their record in extending oil life and keeping motors young is a big factor in—"Keeping 'Em Rolling."

wix
TRADE MARK
FILTEREFIL
ACCESSORIES CORPORATION, GASTONIA, N. C.

ACCESSORIES CORPORATION
GASTONIA, N. C.

Gentlemen: We are interested in refills for

.....

.....

Filters. (GIVE MANUFACTURER'S NUMBER.) Please send us quotations at once.

NAME .....

ADDRESS .....

CITY ..... STATE .....

WAREHOUSES: NEW YORK • KANSAS CITY, MO. • MINNEAPOLIS • LOS ANGELES • SAN FRANCISCO
CANADIAN FACTORY: FYFE OIL FILTERS, LTD., 161 BAY STREET, TORONTO, ONTARIO

JOINT ACTION PLANS

(CONTINUED FROM PAGE 182)

(d) The term "wholesale" shall mean and be deemed to include the distribution and delivery of milk to stores, restaurants, commissaries, hotels, institutions and any and all other distributions and deliveries of milk either for resale or for use and consumption on the premises where delivered other than retail.

(e) The term "milk" shall mean and be deemed to include milk, cream, buttermilk, and any and all other products handled and distributed at wholesale or retail by the distributors, parties to this plan, in connection with the handling and distributing at wholesale or retail of milk.

II. — Effective immediately upon approval of this plan as hereinafter specified, or effective on such other effective date as may be fixed and determined by any amendment or modification of said General Order No. 6, whichever is later, no distributor shall make any special deliveries, call-backs, or more than one delivery on any one day to any one customer, either wholesale or retail, in the Calumet-Indiana-Illinois Area, except as permitted under No. 501.32 of General Order No. 6 of the Office of Defense Transportation.

III. WHOLESALE AND RETAIL —Effective June 1, 1942:

(a) During any period from June 15 to September 14, both inclusive, no wholesale or retail deliveries shall be made in the Calumet-Indiana-Illinois Area before 7 A. M., and no route from which such deliveries are made shall leave the premises of a distributor before 6 A. M.

(b) During any period from September 15 to June 14, both inclusive, no wholesale or retail deliveries shall be made in the Calumet-Indiana-Illinois Area before 8 A. M., and no route from which such deliveries are made shall leave the premises of a distributor before 7 A. M.

(c) The provisions of the above subparagraphs (a) and (b) shall not apply, however, to any deliveries to hospitals, the armed forces of the United States, plants engaged in the manufacture or assembly of war materials, or to any emergencies of the public health, life and safety.

IV. RETAIL—Effective June 1, 1942, retail deliveries to any one customer in the Calumet-Indiana-Illinois Area shall be no more frequent than every other day, and no vehicle shall make more than one call at the premises of a retail customer in any consecutive two-day period.

V.—This plan when effective, shall continue until approval thereof is withdrawn by the Office of Defense Transportation or the Department of Justice.

VI.—All of the signatories hereto or to a counterpart of this plan agree, and each with the other agrees, that this plan shall be valid, binding and effective upon approval by the Office of Defense Transportation.

Agreed, approved and concurred by: Clover Leaf Dairy Co., Borden-Wieland, Div. of The Borden Co., Dixie Dairy Co., Prairie View Dairy Co., United Milk Co., National Dairy, Senchak Dairy Co., Hunding Dairy Co., Bowman Dairy Co., North Hammond Dairy, Calumet Dairy, Maple

(TURN TO PAGE 186, PLEASE)

—with one of these

IMPERIAL WELDING OUTFITS

HERE is a welding outfit that has been designed to speed up the handling of a wide variety of fleet repair work. It has the improved heavy duty type double gauge regulators. Has improved torch balance — a new mixing principle with individual taper seating mixer for each tip. Designed for cooler operation . . . lower operating cost.

Order from your Jobber

No. 1178 Welding Outfit, Each.....$57.00
No. 1178-C Welding Outfit with cutting attachment.....$77.00

THE IMPERIAL BRASS MFG. CO.
1209 W. Harrison Street, Chicago, Illinois

IMPERIAL *Automotive Products*

TUBE FITTINGS ★ FLEXIBLE TUBING ★ TUBING SERVICE TOOLS
BATTERY TESTERS ★ FREEZETESTERS ★ WELDING OUTFITS

. . . AND STILL ANOTHER SERVICE

Again your Bendix-Westinghouse Distributor steps to the front in a new role ★ Augmenting a service which he has for years maintained for your convenience, safety and economy, he is now your U. S. Conservation Corps Station ★ Both he and we invite you to use his facilities to keep America's vital Trucks and Buses rolling . . . dependably! ★ It's not only your patriotic duty but just plain good business to acquaint yourself with the many time and money saving features your Authorized Bendix-Westinghouse Distributor has packed into his very comprehensive Preventative Maintenance Program ★ Join the U. S. Truck Conservation Corps today through your nearest Bendix-Westinghouse Distributor . . . your Safety Headquarters for Victory. And don't forget, one of the surest ways to bring a vehicle up to present standards of efficiency is to equip it with modern control . . . There is a genuine Bendix-Westinghouse Air Brake designed specifically for the lightest to the heaviest truck or bus, with complete installation costs much less than you'd think.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE CO.
ELYRIA, OHIO

AN ORGANIZATION WHOSE UNDIVIDED EFFORT AND COMPLETE RESOURCES ARE DEVOTED TO YOUR CONVENIENCE AND SAFETY

JOINT ACTION PLANS

(CONTINUED FROM PAGE 184)

Leaf Dairy, Jersey Maid Dairy, Ideal Dairy, Pleasant View Dairy, Johnson Dairy Service, Glen Park Dairy, Moxson Dairy Co., Inc., Lake View Dairy Co., Swanson's Dairy, Arvilla Dairy, Sunderman Farm Prod., Inc., Nelson Farm Dairy, Blue Ribbon Dairy Co., Inc., N. Joy Milk Co., Follerton Dairy, Inc.

NEW YORK-NEW JERSEY METROPOLITAN AREA DAIRY PLAN

Plan for the conservation of rubber, fuel and motor vehicle equipment in the transportation and distribution of milk and milk products in the New York-New Jersey Metropolitan Area.

INTRODUCTION — Acting pursuant to No. 501.34 of General Order O.D.T. No. 6, a meeting of milk dealers distributing more than 90 per cent of the milk and cream distributed at wholesale and retail in the New York-New Jersey Metropolitan Area was held on May 7, 1942 for the purpose of formulating a plan intended to effectuate the purposes of the current national conservation program and of General Order O.D.T. No. 6. At that meeting a committee of eighteen designated as "New York-New Jersey Metropolitan Milk Industry War Conservation Committee" was constituted for the purpose of formulating and preparing a plan for joint action on behalf of such distributors as would become signatories and parties thereto for submission to the Office of Defense Transportation in conformity with the terms and provisions of the joint statement issued by the Office of Defense Transportation and the Department of Justice, dated March 12, 1942. The following is the plan for joint action formulated and prepared by the said Committee and agreed and consented to by or on behalf of the distributors signatory hereto or to a counterpart hereof. It is the understanding of the signatories to this plan for joint action that the clearance of this plan and approval by the Office of Defense Transportation is accompanied by the clearance and approval from the Department of Justice.

The plan herein set forth was formulated with an earnest recognition of the need for maximum conservation of the vital materials required by the government in its war effort. A copy of the plan is being submitted to the Milk Wagon Drivers Union, parties to existing labor union agreements with the greater majority of the signatories hereto, and request is being made to the official representatives of the unions concerned for immediate consultation and conference for the full cooperation and participation of the union in carrying out the proposed plan in order most effectively to effectuate the conservation program.

I. DEFINITION OF TERMS.— (a) The terms "vehicle," "special delivery" and "call-backs" as used in this plan shall be the same as defined in No. 501.31 of General Order O.D.T. No. 6.

(b) The term "New York-New Jersey Metropolitan Area" consists of the following:

The City of New York, and the

(TURN TO PAGE 188, PLEASE)

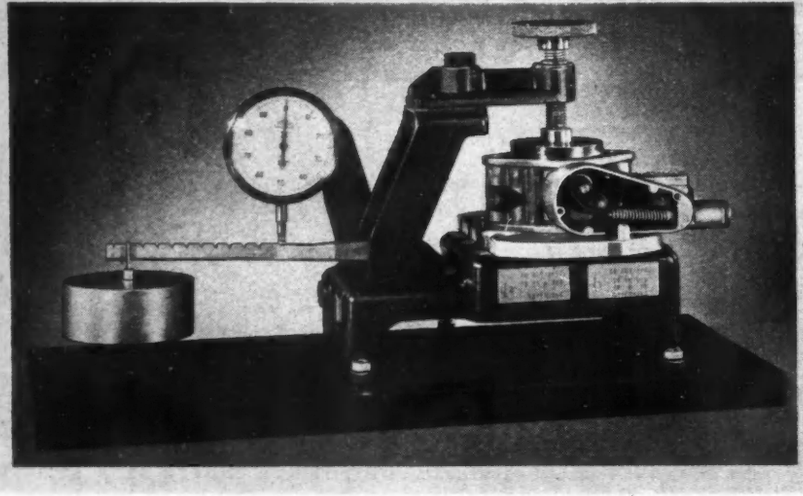
Here's how to

"GET THE MOST OUT OF WHAT YOU HAVE"

The economies arising from engine protection through the use of Governors are vital—they warrant keeping your Governors in top condition.

Although disassembly and replacement of necessary parts can be accomplished by any trained mechanic, almost invariably incorrect tension and calibration result unless the proper equipment is employed. Efficient Governor performance depends on accurate calibration.

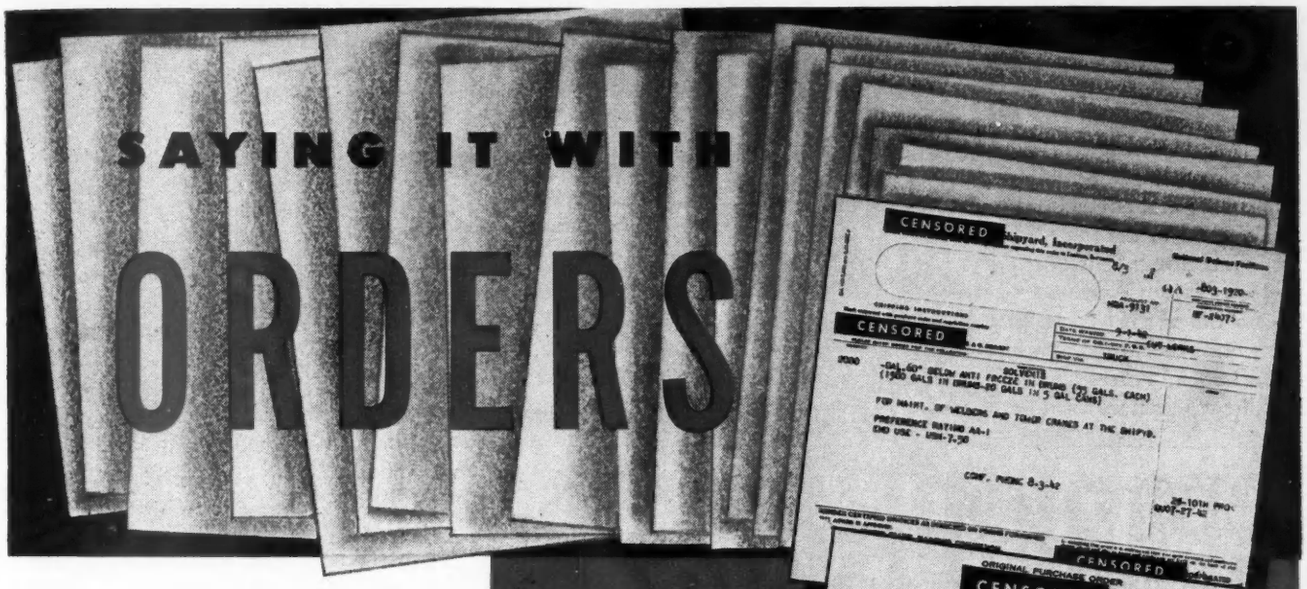
Your authorized Handy Governor distributor has the necessary calibration equipment, the factory trained personnel, to do accurate, efficient and economical Governor service. Take advantage of this and let him place your Vari-Speed and Visible Action Governors in peak condition.



KING-SEELEY CORPORATION • Ann Arbor, Michigan

HANDY *Visible Action* GOVERNOR

World's Largest Manufacturers of Automotive Governors



proves the acceptance of

60 Below

PERMANENT ANTI-FREEZE

ORDER after order for *60 Below* Anti-Freeze in large quantities through our regular jobbing channels from top-ranking companies in their fields is the best evidence we can give you that *60 Below* has proved its merit.

Right now *60 Below* is available for delivery from *60 Below* jobbers. We are continuing to make shipments to the best of our ability. But if you have not secured *your* season's supply of *60 Below*, call your jobber at once. Unless your supply of *60 Below* is arranged for *now* you may face the same old answer—"too little and too late."

2000 gallons of 60 Below for one of the largest shipyards* in the country for maintenance of Welders and Tower Cranes building Liberty ships for the U. S. Navy.

●

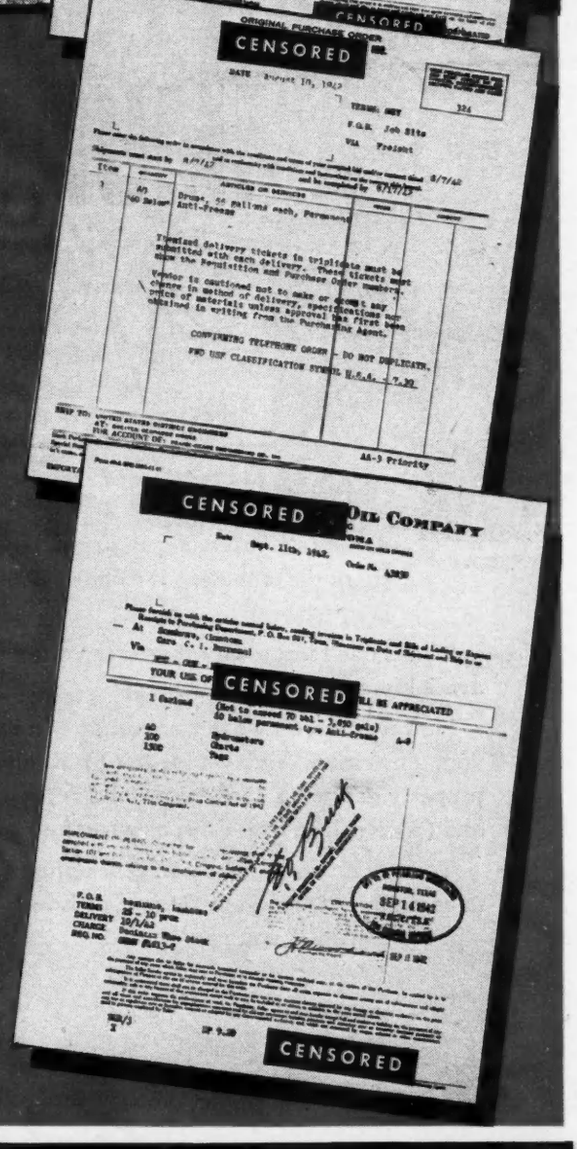
3300 gallons of 60 Below to a large engineering company* to be used in truck equipment and road maintenance machinery on a $120,000,000 ordnance plant under construction for the United States Government.

●

3800 gallons of 60 Below to a major oil company* for use in their own cars, trucks and other mobile equipment employed on National defense work.

●

*For obvious reasons, we cannot reveal publicly the names of these *60 Below* users. To those who have a desire and right to know, names will be sent on request.



Freedom CHEMICALS

FREEDOM CHEMICAL COMPANY

310 LAKESIDE AVE., WEST • CLEVELAND, OHIO

Plants in Cleveland and Toronto, Canada

JOINT ACTION PLANS

(CONTINUED FROM PAGE 186)

Counties of Nassau, Suffolk, Westchester and Rockland in the State of New York; that portion of the County of Fairfield in the State of Connecticut lying South and West of a line projected from Fairfield Northwesterly to the nearest point on the New York State line; the Counties of Hudson, Bergen, Passaic, Essex, Union, Middlesex, Somerset and Morris in the State of New Jersey, and that portion of Monmouth and Ocean Counties in the State of New Jersey bordering on the Atlantic Ocean, including the coastal area designated as the north shore resort section, and the municipalities of Morgan, Keyport, Red Bank, Long Branch, Asbury Park, Toms River and points south to Brigantine Inlet, which separates the Counties of Ocean and Atlantic, in the State of New Jersey.

(c) The term "New York urban area" shall be deemed to mean and include the Counties of Kings, Queens New York and Bronx and the Cities of Yonkers and Mount Vernon.

(d) The term "New York suburban area" shall mean and be deemed to include all of the territory in the State of New York and in the State of Connecticut, described in subdivision (b) herein, other than the portions included in the New York urban area described in subdivision (c) herein.

(e) The term "New Jersey area" shall mean and be deemed to include all of that portion of the New York-New Jersey Metropolitan area which is contained within the State of New Jersey.

(f) The term "retail" shall mean and be deemed to include the delivery of milk by vehicle directly to the home of a consumer.

(g) The term "wholesale" shall mean and be deemed to include the distribution and delivery of milk to stores, restaurants, commissaries, hotels, institutions and any and all other distributions and deliveries of milk and milk products either for resale or for use and consumption on the premises where delivered other than retail.

(h) The term "milk" shall mean and be deemed to include milk, cream, buttermilk and any and all other products handled and distributed at wholesale or retail by the distributors, parties to this plan.

II.—Effective May 15, 1942, pursuant to No. 501.32 of General Order O.D.T. No. 6, or such other effective date as may be fixed and determined by any amendment or modification of the said Order No. 6, no distributor shall make any special deliveries, call-backs or more than one delivery on any one day to any one customer either wholesale or retail, except as permitted under paragraph (a) of No. 501.32 of the General Order No. 6 of the Office of Defense Transportation.

III. WHOLESALE. — Effective June 1, 1942.

(a) No wholesale route shall make any deliveries in the New York urban area other than for use and consumption on the premises earlier than 6. A. M.

(b) No wholesale route shall make any deliveries in the New York suburban area before 7 A. M.

(TURN TO PAGE 190, PLEASE)

SPARK PLUGS ARE AMMUNITION TOO!

America's mechanized army requires millions of spark plugs to keep it rolling—and the nation comes first, naturally.

That's one reason why there aren't as many Edison plugs available as we'd both like.

However, here's what you can do—to help your country, your customers, and yourself. (1) Keep plugs clean and properly gapped. (2) Remove and replace plugs with care, and (3) Replace with Edisons when new plugs are required.

Today's Edison engineered spark plugs are the finest ever to come out of the great "House of Edison." They're scarce—but get them if you can.

Edison DeLuxe Cleaner—cleans and prolongs spark plug life. Dim. 17½" high — 7 5/16" wide — 6¾" deep.

Edison
SPARK PLUGS

EDISON-SPLITDORF CORP., WEST ORANGE, N. J.

FIFTH ANNUAL
TRAILMOBILE
TROPHY AWARD
AUGUST 1, 1942 TO JULY 31, 1943
TO BE AWARDED TO THE TRUCKING CONCERN HAVING THE BEST RECORD OF SAFETY, SERVICE, BETTER LOAD-PLANNING, AND PREVENTIVE MAINTENANCE
EVERY year The Trailer Company of America, under the direction of the American Trucking Associations, awards a Trophy to the company having the best record of safety in the operation of their equipment. This includes compliance with all state legislation and safety regulations, training of personnel, maintenance of equipment, and service to the public on the highway.
This year The Trailer Company of America in cooperation with the Office of Defense Transportation and the American Trucking Associations, has amended its contest rules to require reports and supporting data on *Safety* and *Service, Preventive Maintenance,* and *Better Load-Planning.* These reports, submitted by contestants to the American Trucking Associations, Inc., in Washington, D. C., form the basis on which the Award and Honorable Mention plaques are made. Over a period of years, the Trailmobile Trophy has become a coveted prize, symbolizing the kind of operation which inspires greater confidence from customer and the public. Every carrier in the United States, large or small, is eligible to enter this contest. The added requirements of *Preventive Maintenance,* and *Better Load-Planning* adds practical every-day value to your entry.
Write today for the "HOW TO WIN" folder, addressing The American Trucking Associations, Inc., Washington, D. C., or The Trailer Company of America, Cincinnati, O.
★ ★ ★ ★ ★
TRAILMOBILE'S engineering talent and production facilities are employed in producing trailers for the U. S. Signal Corps, U. S. Army Ordnance, U. S. Navy, U. S. Air Corps, U. S. Engineers, Maritime Commission, and Lend Lease.
T-1942
TRAILMOBILE

JOINT ACTION PLANS

(CONTINUED FROM PAGE 188)

(c) No wholesale route shall make any deliveries in the New Jersey area before 6.15 A. M.

(d) Wholesale deliveries shall be on a six-day a week basis. No deliveries from any wholesale route shall be made on Sundays and no wholesale customer shall be served on Sundays, except deliveries to hospitals, the armed forces of the United States, in emergencies of the Public health, life and safety, and to defense plants in operation on Sunday.

IV. RETAIL—Effective June 1, 1942.

(a) All retail delivery and distribution in the New York-New Jersey Metropolitan Area shall be on an every other day basis and no vehicle shall make more than one call at the premises of the retail customer every two days.

(b) No retail route shall make any wholesale deliveries in the New York urban area other than for use and consumption on the premises earlier than 6 A. M.

(c) No retail route in the New York suburban area shall leave the premises of the distributor before 6:30 A. M. or make any deliveries before 8 A. M. except that wholesale deliveries made from such retail route may commence at 7 A. M.

(d) No retail route in the New Jersey area shall make any deliveries before 7:30 A. M., except that wholesale deliveries made from such retail route may commence at 6:15 A. M.

(e) No retail route shall make any wholesale deliveries on Sundays.

V.—In order to shorten routes and reduce mileage so as most effectively to carry out the conservation program, distributors, parties to this plan, may exchange customers and routes or portions of routes.

VI.—All of the signatories hereto or to a counterpart of this plan agree and each with the other agrees that this plan shall become valid, binding and effective upon clearance with the Office of Defense Transportation and concurrence of the Milk Wagon Drivers Union.

HOUSEHOLD GOODS MOVERS' COORDINATION PLAN

Upon consideration of the application for authority to coordinate motor vehicle service in the transportation of household goods, filed with this Office by Aero Mayflower Transit Company, Indianapolis, Indiana; Greyvan Lines, Inc., Chicago, Illinois; United Van Lines, Inc., St. Louis, Missouri; and North American Van Lines, Cleveland, Ohio, as governed by Section 501.9 of General Order O.D.T. No. 3, Revised, and good cause appearing therefor,

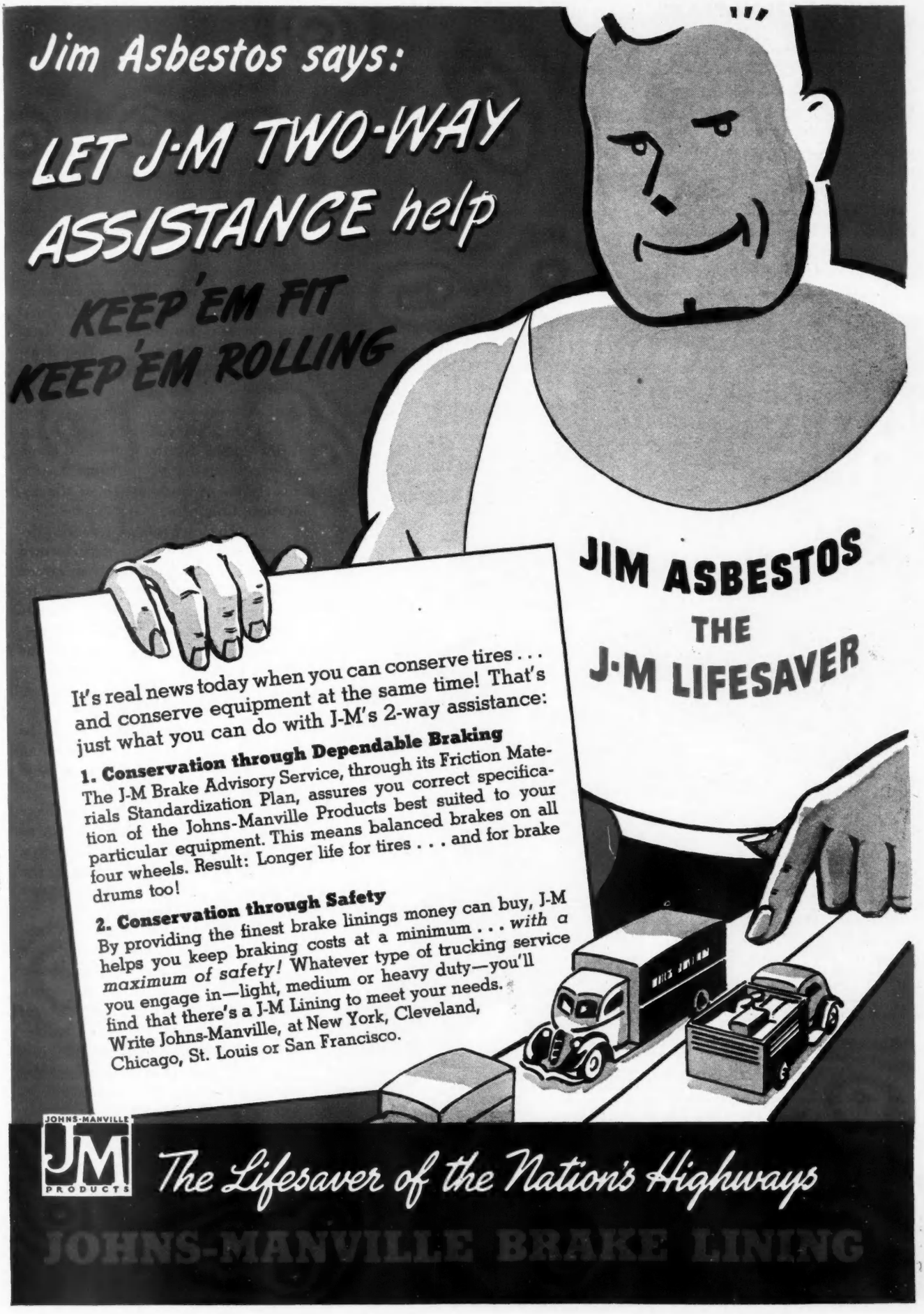
IT IS HEREBY ORDERED, That:

(1) Aero Mayflower Transit Company, Greyvan Lines, Inc., United Van Lines, Inc., and North American Van Lines, (hereinafter called "carriers"), respectively, in the transportation of household goods, as common carriers by motor vehicle, shall establish an office at Chicago, Illinois, to facilitate the movement of household goods shipments in the following manner:

(a) Register with the office shipments which any of the carriers may be unable to transport by reason of

(TURN TO PAGE 192, PLEASE)

A Vital Part of the Program
Pledged
U.S. TRUCK
CONSERVATION CORPS
HEART
OF TIRE CONSERVATION IS
BEAR
WHEEL ALINEMENT
AND BALANCING
Most Important Tire Saving Procedures
Outlined in the O. D. T. Manual are —
Item 23 in the 1,000 mile inspection.
Items 17 and 23 in 5,000 mile inspection.
Item 21 in the 15,000 mile inspection.
Just as important as wheel alining is wheel balancing. All other precautions are nullified completely if wheels are out of alinement or balance! That is why Bear Wheel Aliners and Balancers are being called upon to play so important a part in lengthening the life of tires and parts for military transport, motor truck and bus transport, and America's essential 20,000,000 passenger cars.
GET BEAR EXPERT ADVICE AND INSIST ON BEAR SERVICE
Send your questions about tire conservation to us. As pioneers in wheel alinement and balancing we can show you how to get the most out of tires. If you wish names of Bear Service Stations in your vicinity, we'll gladly send them to you. Address Bear Mfg. Co., Rock Island, Illinois.


Jim Asbestos says:
LET J-M TWO-WAY ASSISTANCE help
KEEP 'EM FIT
KEEP 'EM ROLLING
JIM ASBESTOS
THE
J-M LIFESAVER
It's real news today when you can conserve tires . . . and conserve equipment at the same time! That's just what you can do with J-M's 2-way assistance:
1. Conservation through Dependable Braking
The J-M Brake Advisory Service, through its Friction Materials Standardization Plan, assures you correct specification of the Johns-Manville Products best suited to your particular equipment. This means balanced brakes on all four wheels. Result: Longer life for tires . . . and for brake drums too!
2. Conservation through Safety
By providing the finest brake linings money can buy, J-M helps you keep braking costs at a minimum . . . with a maximum of safety! Whatever type of trucking service you engage in—light, medium or heavy duty—you'll find that there's a J-M Lining to meet your needs. Write Johns-Manville, at New York, Cleveland, Chicago, St. Louis or San Francisco.
JOHNS-MANVILLE
JM
PRODUCTS
The Lifesaver of the Nation's Highways
JOHNS-MANVILLE BRAKE LINING

JOINT ACTION PLANS

(CONTINUED FROM PAGE 190)

the restrictions contained in General Order O.D.T. No. 3, Revised;

(b) Register with the office all empty equipment, and partially loaded equipment, for which the carrier has no shipments available;

(c) The office shall advise the individual carriers as to the shipments registered and the empty equipment, or the unloaded space therein, which is available. Provided, however, That nothing herein contained shall be construed to authorize the manager of the office, or any of the employees thereof, to dispatch equipment, direct traffic, or exercise any supervision or control over the movement of any shipment, or part thereof, in any manner whatsoever;

(d) Prepare, maintain, and keep open for inspection by representatives of this office such records as may be hereinafter prescribed by this office;

(e) The cost of maintaining the office shall be equally divided among the carriers for the first month's operations and divided on the basis of the volume of business exchanged between the carriers for the succeeding months.

(2) Carriers shall exchange shipments registered at the office under the following conditions:

(a) All shipments shall be transported to point of destination on the bill of lading of the carrier with whom the shipper entered into a contract of carriage and such contracting carrier shall assume all legal liability with respect to loss and damage to such shipments and shall assume the responsibility of making settlement of any and all such claims and shall protect such shipper as provided for in the rules and regulations promulgated by the Interstate Commerce Commission pursuant to the provisions of Section 218 of the Interstate Commerce Act;

(b) The division of revenues derived from transportation performed pursuant hereto shall be that agreed upon by the carriers party thereto. In the event such carriers are unable to agree, then the division of revenues shall be determined by the Office of Defense Transportation.

(c) Storage in transit and accessorial service charges, other than packing and unpacking, shall be charged pursuant to the performing carrier's tariff and shall be retained by such performing carrier.

(3) Carriers shall not exchange shipments with such other except as provided herein, Provided, always, That the duties and obligations of the originating carrier to the shipper shall remain unchanged.

(4) Any common carrier by motor vehicle duly authorized to engage in the transportation of household goods shall be entitled to participate in the plan of action and arrangements contemplated by this Supplementary Order O.D.T. No. 3-1 if, upon application filed with this office, a copy of which application shall be served upon each member carrier to this plan, the Director of the Office of Defense Transportation shall have determined that the facilities of such common carrier are suitable for participation in such plan and arrangements.

(5) Each carrier named herein shall file a copy of this Supplementary

(TURN TO PAGE 194, PLEASE)

ANTHONY
HYDRAULIC
HYDRAULIC HOISTS AND BODIES
are helping
Win the War!
HIGHWAYS
FOREIGN BASE CONSTRUCTION
CONSTRUCTION
AIRPORTS
CAMPS
IRON RANGE
SERVING BOTH FRONTS
Anthony Hydraulic Hoists and Bodies in capacities from 5 to 30 tons are working day and night to build America's most vital Highway, and airports, camps and bases around the world. Deep in the pits of rich ore deposits Anthony Hydraulic Hoists and bodies move endless streams of essential ore. Anthony has and is producing equipment for both fronts, military and construction, delivering on schedule.
STOCKS OF "SUPER" HYDRAULIC HOISTS AND BODIES ARE CARRIED AT FACTORY and DISTRIBUTING POINTS FOR IMMEDIATE SERVICE
ANTHONY COMPANY, INC.
STREATOR ILLINOIS

Mr. Fleet Operator:

I AM K&W MECHANICAL METHOD. I CAN TAKE CARE OF THE OTHER 10%
I CAN REPAIR 90% OF YOUR CRACKED BLOCKS AND HEADS. JUST POUR ME IN.
K&W
Metallic
SEAL
PATENT PENDING
THE GUARANTEED METHOD
FOR REPAIRING CRACKED
MOTOR BLOCKS & HEADS
MANUFACTURED BY
KERKLING & COMPANY, INC
BLOOMINGTON INDIANA U.S.A.

Your job for our Government is one of greatest importance — to "Keep Supplies Rolling".

You know cracked blocks and heads are one of your major problems of maintenance. Realizing this emergency, we have established in Bloomington, Indiana, a school for teaching the correct K & W method of repairing cracked motor blocks. We are also holding schools all over the United States, and will be holding one in your territory soon. Practically all of the truck manufacturers know of this method and recommend it. Railroad companies are using it as well as ordnance plants and the army.

If you are interested in saving your motor blocks and heads, and prefer to do the work yourself at a very reasonable cost, our suggestion is that you consult your local jobber first. Over 1200 of these jobbers are handling the K & W line. Your jobber can give you the answers to the problems of cracked blocks. If not, use the coupon below.

Literature will be sent to you. Our man will call upon request.

MAIL THE COUPON NOW

KERKLING & COMPANY, Inc., Bloomington, Indiana

Gentlemen:

Please send literature concerning K & W School to be held in my neighborhood ☐
Please send representative to explain K & W Method and School ☐

NAME .....

JOBBER ☐ FLEET ☐ DEALER ☐ BUS OPERATOR ☐ CONTRACTOR ☐

STREET ..... CITY ..... STATE .....

JOINT ACTION PLANS

(CONTINUED FROM PAGE 192)

Order with the Interstate Commerce Commission and with each appropriate State regulatory body.

This Order shall become effective on September 10, 1942, and shall remain in full force and effect until further order of this office.

Issued at Washington, D. C. Sept. 10, 1942. (Signed) C. D. Young, Acting Director of Defense Transportation.

Procedure for Submission of Proposed Plans to the ODT

IT is of paramount importance that rubber, motor vehicle equipment, and other vital materials used in the rendition of local delivery service be conserved to the greatest extent possible at the earliest possible date. Therefore, the Office of Defense Transportation recommends that the procedure outlined below be followed in establishing plans or programs which have as their sole purpose the conservation of such materials:

1. In the development of such programs the fullest possible consultation should be had with all interested or affected parties, including consumer groups (insofar as they are organized).
2. In the event a joint voluntary plan of action has been adopted by any group (which plan of action in all instances should be reduced to writing and signed by all persons party thereto) and such persons desire that such plan shall be cleared by the Office of Defense Transportation and the Department of Justice, prior to the effectiveness thereof, such clearance may be procured in the following manner:
   a. The plan so adopted should be immediately forwarded to Mr. John L. Rogers, director, Division of Motor Transport, Office of Defense Transportation, Room 4211, Interstate Commerce Commission Building, Washington, D. C.
   b. The plan so submitted will be reviewed by the director and any questions which it raises under the anti-trust laws will be discussed with the Department of Justice. If the director approves the plan and the Department of Justice sees no legal obstacle to carrying it out, it will be cleared and the persons party thereto so advised. If the plan contains provisions which the director does not approve or which appear to violate the anti-trust laws, such persons will be advised in order that the plan may be improved and re-considered.
3. In the event that any group desires to establish a plan for the conservation of rubber, mo-

(TURN TO PAGE 196, PLEASE)

FASTENINGS YOU CAN TRUST

1. Application is fast and fool-proof...
Their locking action is immediate and automatic . . . no pins, no washers, nothing to forget.

2. Grip is positive, yet resilient...
Threads of nut and bolt are held in contact under constant cushioned pressure. The nuts stay put.

3. The locking element does not fail...
Made of non-metallic, non-fatiguing material, it cannot be broken down by vibration or prolonged hard service.

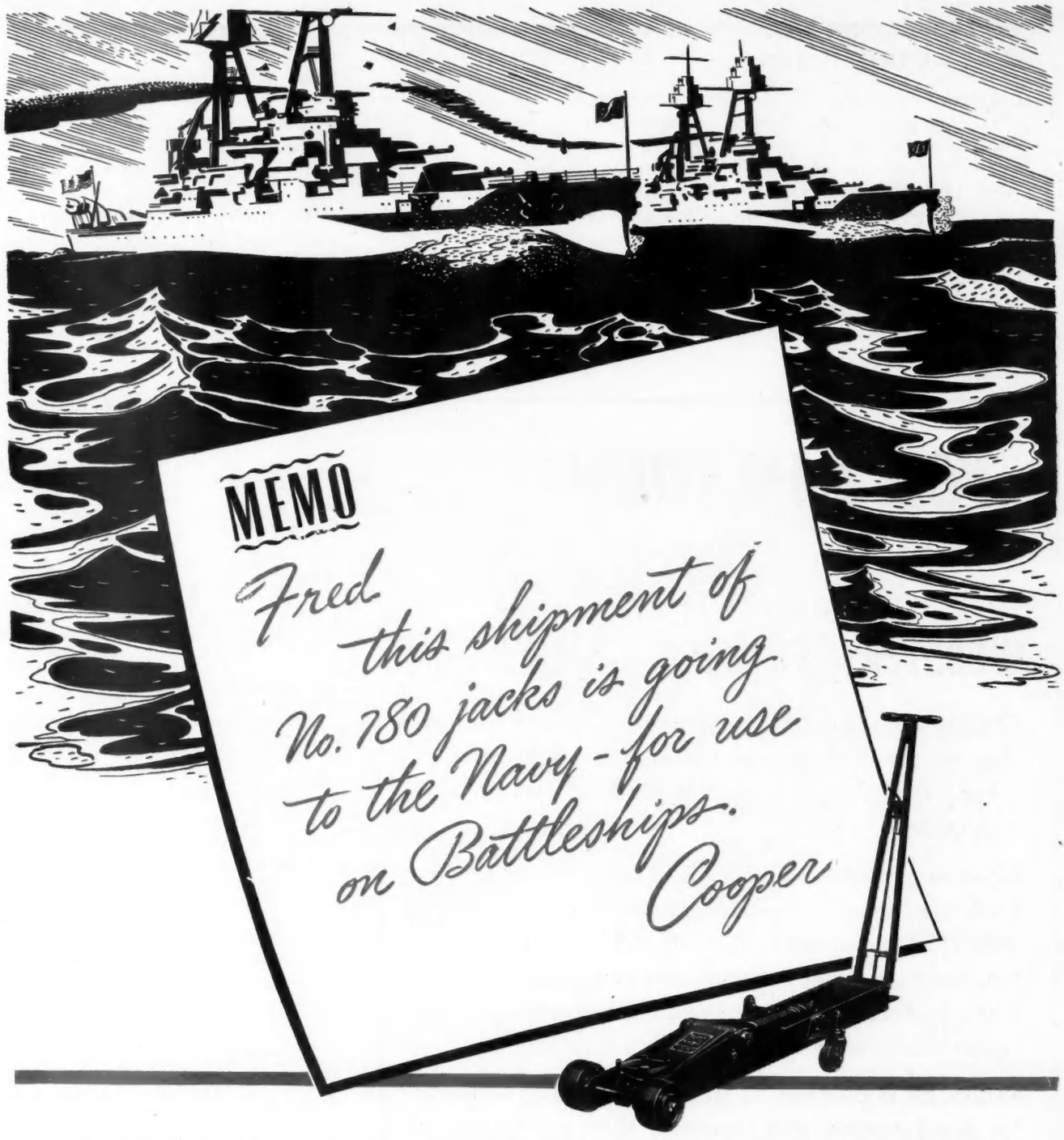
There are more Elastic Stop Nuts on America's airplanes, tanks, guns, Naval vessels, and production equipment, than all other lock nuts combined.

» *Write for folder explaining the Elastic Stop self-locking principle*

ELASTIC STOP NUT CORPORATION • 2349 VAUXHALL ROAD • UNION, NEW JERSEY

Elastic Stop SELF-LOCKING NUTS AND AIRCRAFT FITTINGS
REG. U.S. PAT. OFF.

WITH THE RED LOCKING COLLAR . . . SYMBOL OF SECURITY



You don't mind, do you—giving up these fine hydraulic service jacks to your Navy (and your Army, too)?

You want the boys who are doing the fighting to have the finest equipment America can build, don't you?

You understand that until this war is won, we all have to give up certain things we'd like to have.

We understand, too, how much you need jacks like Walker "780s"—big, strong "10-tonners" that handle trucks easily and safely—to help in your job of maintaining trucks for vital war transportation. But Uncle Sam knows best who needs them most—*NOW!*

WALKER MANUFACTURING COMPANY OF WISCONSIN, RACINE, WISCONSIN
Also makers of Walker Silencers and Electric Lifts

★★★ WALKER LEADS IN JACKS ★★★

PROCEDURE FOR ODT JOINT ACTION PLANS

(CONTINUED FROM PAGE 194)

tor vehicle equipment, or other vital materials in connection with local delivery service but are unable to agree upon the terms and provisions of such a plan, they may, if they so desire, submit such matter to the Office of Defense Transportation for such consideration and action as it shall determine to be necessary or advisable in the premises.

The Office of Defense Transportation is presently engaged in establishing regional field offices in certain of the principal cities throughout the country. As soon as such offices have been established any such conservation plan may be submitted to the Office of Defense Transportation either through such field offices or directly to the Office of the director of its Motor Transport Division in Washington. Until such time as such field offices have been established all such plans should be submitted directly to the director of the Division of Motor Transport.

The Office of Defense Transportation is hopeful that all parties interested in local delivery service by motor vehicle will recognize the seriousness of the existing situation as it affects such local delivery service and that they will take prompt and effective steps in consonance of the foregoing statement in order to alleviate such situation.

Applicability of the Anti-Trust Laws
Views of the Department of Justice

To aid business enterprises in working out ways to meet the shortage of facilities for the operation of local delivery systems, the Office of Defense Transportation has established a procedure for clearance of plans for the conservation of materials necessary in local delivery services.

Any action taken in accordance with a plan approved by the Office of Defense Transportation cannot be prosecuted under the anti-trust laws. It is not a conspiracy so long as it follows a plan approved or requested by the appropriate Government agency. The emergency requires that the decision of the Office of Defense Transportation that this procedure is in the interest of efficient transportation during the period of national emergency be taken as final.

Inasmuch as action to combine the operation of local delivery services must be taken quickly and often before consultation with the Office of Defense Transportation, the following statement as to the application of the anti-trust laws in such situations may be taken as a guide prior to official request or approval.

Even without specific approval, programs established during the emergency for the sole purpose of conserving rubber and other scarce materials used in local delivery services are obviously not violations of the anti-trust laws. Such violations would arise only if such programs included unreasonable restraints of trade not logically related to conservation, such as price fixing, elimina-

(TURN TO PAGE 198, PLEASE)

YOU CAN COUNT ON SERVICE

WEBSTER CERTIFIED CAMELBACK

Quality camelback is determined by many factors. The amount of crude rubber is only one of these. That factor is strictly fixed by government regulation.

However, the other materials used in making camelback are equally important and coupled with the WEBSTER experience, the WEBSTER insistence on the finest of workmanship and machinery—all of these factors insure that WEBSTER camelback and repair materials are the finest you can buy.

WEBSTER is pledged to provide the best materials for tire treading and repairing that are available under the restrictions of our war program. For Service and Safety insist on WEBSTER materials.

WEBSTER RUBBER CO.
WARREN, OHIO

BORG & BECK

the standard

Clutches of known excellence . . . for all types of vehicles now in war service

More than ever before, Borg & Beck's clutch building experience pays dividends to our country and citizens.

Long wear and ability to "take it"—two important characteristics of all Borg & Beck clutches—have never loomed so important as they do during the war years. Couple those very desirable features with a clutch that can be produced on time in the quantities desired—and you've got a quick picture of Borg & Beck's ability to serve your government.

BORG & BECK DIVISION
BORG-WARNER CORPORATION
CHICAGO, ILLINOIS

FEL-PRO *is Doing*

that which America is *Expecting* of *All American* Industry!

You Americans expect American Industry to meet, somehow and someway, the challenge of critical materials by using or developing other materials that will do the job as well or better.

American Industry will not fail you! In the field of Automotive and Industrial gaskets, Fel-Pro is proud to report that every gasket need is being met. Fel-Pro has a satisfactory substitute for every critical material formerly used in gaskets. For example, Fel-Pro has developed an eminently satisfactory rubber substitute for gaskets and automotive sealing materials formerly requiring this critical war material.

As a result of the intensive search for non-critical materials, Fel-Pro has made and will continue to make important discoveries which will enable Fel-Pro to serve you even better after the Victory is Won. Meanwhile Fel-Pro is proud of the part its products are playing on the War Front, the Production Front and in helping you automotive servicemen keep America's vital motor transportation rolling.

Felt Products Manufacturing Company, 1520 Carroll Avenue, Chicago, Illinois.

FEL-PRO Gaskets
PUMP PACKING
GREASE RETAINERS

PROCEDURE FOR ODT JOINT ACTION PLANS

(CONTINUED FROM PAGE 196)

tion of independent businessmen, or perpetuation of inefficient systems of distribution. Certain safeguards which will make it easier to avoid unreasonable restraints of trade are set forth below in statements concerning the two most common methods used to conserve tires.

(1) *Pooling of delivery service.* This method involves joint use of the same truck to deliver goods sold by competitors each of whom formerly made separate arrangements for delivery. It eliminates duplicate mileage of delivery trucks down the same street in residential areas.

The mere establishment of a jointly used facility by a group of rival businessmen does not necessarily violate the anti-trust laws. Jointly maintained inspection departments, statistical bureaus, and similar agencies have long been operated in many industries; and in some cities large department stores have maintained a joint system of package delivery for many years. The Department of Justice sees no reason to regard joint systems of delivery during the emergency as violations of the anti-trust laws if they are established for the sole purpose of conserving rubber and are so organized that they do not in fact accomplish additional purposes of restraining trade, however:

(a) Competitors should not be excluded from the market or handicapped in their access to it by discrimination in the use of joint systems of delivery. Under ordinary circumstances, any competitor is free to set up his own delivery system or to hire the service of a commercial trucking company. The present emergency has destroyed or severely limited these alternatives. Therefore, in any situation in which the market is so small or the competitors so few that the maintenance of two or more joint delivery systems is not practicable, exclusion of any competitor from the right to use a joint system probably would amount to his exclusion from the market, and discrimination against him in service rendered or charge imposed probably would amount to joint activity to handicap him in the market. Such exclusions or handicaps probably

(TURN TO PAGE 248, PLEASE)

Reboring Wartime Motors

quickly done by Automotive Distributors, Inc.

with VAN NORMAN Per-Fect-O Boring Bars

Says Manager Frank L. Ryan: "This company has been using Van Norman Boring Bars in all its five branches for the past ten years. We have standardized on Van Norman because of their simplicity of use and time-saving features, and find these bars by far the best for production work."

In leading shops like this all over the country, Van Norman Per-Fect-Os are turning out quality work at the top rate of one cut per cylinder . . . to factory accuracy . . . keeping car, truck and bus motors running economically. *You* can get your own jobs done to Van Norman standards, even if you have no Per-Fect-O and can't get the high priority to buy one. Your local jobber has a Per-fect-O to do the work, or will have it done for you.

No. 777 Portable Per-Fect-O at work in the Boston shop of Automotive Distributors, Inc. This war-busy jobber also maintains branches in Taunton, Lynn, Salem, Gloucester.

VAN NORMAN EQUIPMENT RE-DISTRIBUTION PLAN Can Help You to HELP WIN THIS WAR

If you have any idle service machines, send full description and asking price to C. R. Crowder, Van Norman. Your listing will be sent to every jobber. Or if you need a machine you can't buy *now*, tell your jobber to look over his Van Norman list. If the machine you want is on that list, he'll get it for you. Don't wait.

"It pays to Van Normanize"

VAN NORMAN MACHINE TOOL COMPANY

SPRINGFIELD, MASSACHUSETTS

Your spark plugs will last longer—your engines will perform better—and your gas mileage will hold higher—if you will do these three simple things *regularly:*

1 Have your spark plugs cleaned and regapped every 4,000 miles.

2 Replace worn plugs promptly.

3 Change to a "hotter" plug if you are troubled with excessive fouling; or to a "cooler" plug if preignition, rapid wear, cracking, or splitting are chronic.

Users' records show that plug life can be greatly increased if plugs get this care regularly and religiously. These records also show that fuel mileage also improves (as much as 10%), and performance and starting ease are stepped up.

Clearly, proper care for that "spark of life" for the engine is a wartime *must,*—and a worthwhile factor in reducing costs, also. So, give your spark plug equipment this 3-way care—always.

ARMY E NAVY

AC PRODUCES FOR VICTORY—Machine guns, aircraft spark plugs, standard spark plugs, oil filters, and many other products are being supplied to our armed forces.

BEST BY TEST
AC
SPARK PLUGS
SAVE GAS

AC SPARK PLUG DIVISION • *General Motors Corporation*

TRUCK RATIONING USAGE CLASSIFICATION LIST

Schedule A to General Conservation Order M-100

The following classification of commercial motor vehicles on the basis of use applies to light, medium and heavy trucks, truck-tractors, trailers, and chassis thereof. It will serve as a broad general basis for the preferential allocation of the supply of such new vehicles. The various classes are arranged in the order of their importance from the standpoint of the national war effort. Individual groups within a given class are shown as illustrations of the coverage of the class and do not indicate preference groups within the class.

All vehicles are to be classified according to their predominant or principal use into five classes arranged in the order in which preference is to be granted. As a general rule, predominant or principal use means 50 per cent or more of the applicant's operations.

The Usage Classification List, which covers civilian transportation only, is as follows:

CLASS I

Vehicles principally used in connection with military forces (in action or on maneuvers), public health or safety, or with essential channels of communication, such as

In connection with military forces in the field (in action or on maneuvers).

To maintain public police services; fire-fighting services; services essential to protection of public health and safety, including the regulation of highway traffic and prevention of highway accidents.

To construct and maintain mail, telegraph, telephone and organized radio communication services.

To furnish and maintain water supply, sewage and garbage disposal and other sanitation services.

CLASS II

Vehicles principally used directly in connection with the war effort, such as

In connection with fixed military and naval posts and establishments.

In the transportation of all materials, supplies and equipment of industry and business directly connected with the war effort, including farm and forest products, and food.

In service operations connected with the construction, maintenance and supply of essential rail, highway, water, pipe line, and air transportation facilities.

Transportation of material and equipment for construction of defense housing facilities.

In the transportation of material and equipment for the construction and maintenance of public utilities other than those specified in Class I above.

In the transportation of persons engaged in business, industry, etc., directly connected with the war effort.

CLASS III

Vehicles principally used in connection with essential functions indirectly connected with the war effort, such as

In the transportation of all materials, supplies and equipment of industry and business indirectly connected with the war effort, including farm and forest products, and food.

For the transportation of ice, and fuel for heating and power to the ultimate consumer for personal family or household use.

For the rendering of essential roofing, plumbing, heating, electrical, building and vehicle repair services.

For the collection of waste and scrap material other than services performed in connection with Class I.

In the transportation of persons in business, industry, etc., indirectly connected with the war effort.

In the service of public and private schools and educational institutions.

CLASS IV

Vehicles used for the transportation of persons or goods, except as above classified, not connected with the war effort, and which are used in the less essential activities.

This includes all essential forms of retail delivery, except that of ice and fuel (See Class III).

CLASS V

Vehicles used in connection with non-essential functions or so-called "luxury" uses and not connected with the war effort.

OPA TIRE RATIONING VEHICLE ELIGIBILITY LIST

LIST A

The following vehicles shall be eligible for tires or tubes to the extent, and only to the extent provided by Chapter 4 of the Tire Rationing Regulations which defines permitted and prohibited transfers and deliveries to users.

(a) A vehicle which is operated by a physician, surgeon, visiting nurse, or a farm veterinary, and which is used principally for professional services;

(b) A vehicle which is operated by a regularly practicing minister of any religious faith and which is used principally in and is necessary to the performance of his religious duties;

(c) An ambulance;

(d) A vehicle used exclusively for one or more of the following purposes:

(1) To maintain fire-fighting services;

(2) To maintain necessary public police services;

(3) To enforce such laws as relate specifically to the protection of public health and safety;

(4) To maintain garbage disposal and other sanitation services;

(5) To maintain mail services;

(e) A vehicle with a capacity of 10 or more passengers operated exclusively for one or more of the following purposes:

(1) Transportation of passengers as part of the service rendered to the public by a regular transportation system;

(2) Transportation of students and teachers to or from school;

(3) Transportation of employees to or from any industrial or extractive establishment, power generation or transmission facilities, transportation or communication facilities, construction project, or farm, except when public transportation facilities are readily available;

(f) A truck operated exclusively for one or more of the purposes stated in the preceding sections or for one or more of the following purposes:

(1) Transportation of ice and fuel;

(2) Transportation of materials and equipment for construction or for mechanical, structural, or highway maintenance or repair;

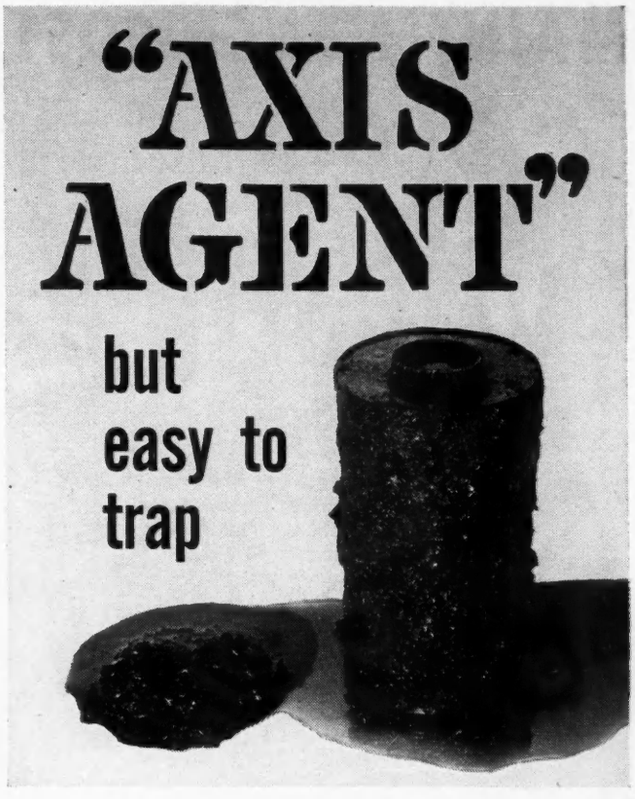
(3) Transportation by any common carrier;

(4) Transportation of waste and scrap materials;

(5) Transportation of raw materials, semimanufactured goods, and finished products, including farm products and foods: *Provided*, That no certificates shall be issued under this paragraph for a tire or tube to be mounted on a truck used for transportation of commodities to the ultimate consumer for personal, family, or household use;

(g) Farm tractors or other farm implements other than automobiles or trucks, for the operation of which rubber tires or tubes are essential;

(Turn to page 202, please)



If the thunder of America's millions of rolling commercial vehicles were suddenly to be stilled, there would be joy in Berlin and Tokio. For the Axis knows that home front and fighting fronts lean heavily on commercial hauling.

It takes many things to keep those vehicles rolling. One of them is clean engine oil. Dirty, sludge-loaded oil clogs piston and ring slots—accelerates carbon formation—forces early engine overhauls. It takes badly needed vehicles off the road, and wastes both oil and fuel.

AC's GET THAT DIRT—You can drive, always, with clean oil if you equip your engines with AC or Argo Oil Filters, and replace your filtering elements promptly when the oil gets black. These performance-proved filters trap dirt, sludge, and discoloration (carbon color). Available in sizes for all engine displacements and crankcase capacities, these filters more than pay their way—in every kind of hauling.

AC FILTERS—*tops in quality*

ARGO FILTERS—*at lower cost*

AC PRODUCES FOR VICTORY—Machine guns, aircraft spark plugs, standard spark plugs, oil filters, and many other products are being supplied to our armed forces.

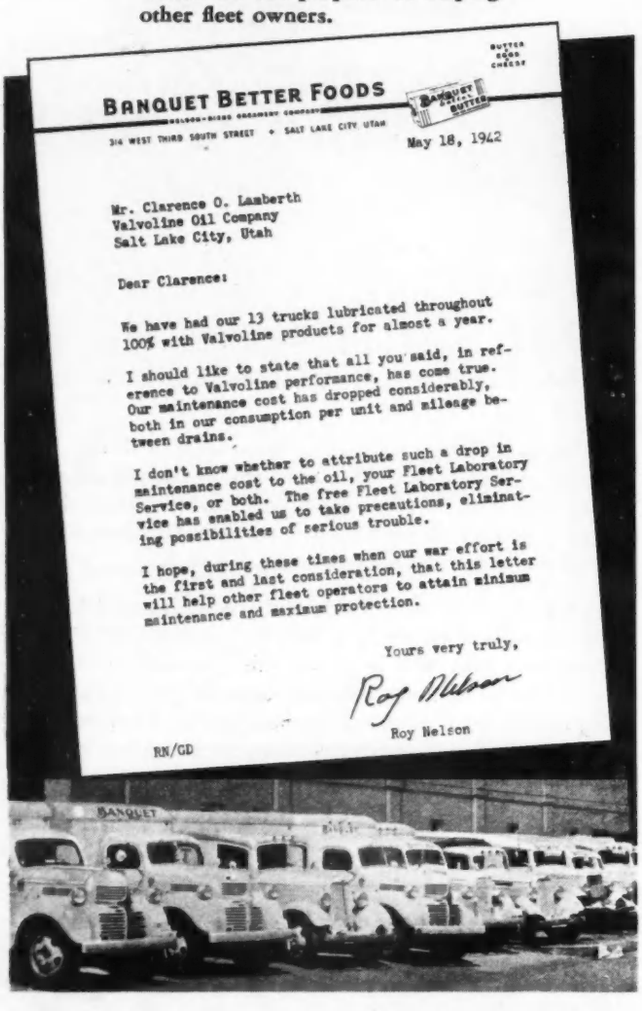
AC SPARK PLUG DIVISION • *General Motors Corporation*

MAINTENANCE COST DROPPED

with 100% use of VALVOLINE

Products

Here is the experience of a new friend of Valvoline. Mr. Nelson writes for the purpose of helping other fleet owners.



BANQUET BETTER FOODS

314 WEST THIRD SOUTH STREET • SALT LAKE CITY UTAH

May 18, 1942

Mr. Clarence O. Lamberth
Valvoline Oil Company
Salt Lake City, Utah

Dear Clarence:

We have had our 13 trucks lubricated throughout 100% with Valvoline products for almost a year.

I should like to state that all you said, in reference to Valvoline performance, has come true. Our maintenance cost has dropped considerably, both in our consumption per unit and mileage between drains.

I don't know whether to attribute such a drop in maintenance cost to the oil, your Fleet Laboratory Service, or both. The free Fleet Laboratory Service has enabled us to take precautions, eliminating possibilities of serious trouble.

I hope, during these times when our war effort is the first and last consideration, that this letter will help other fleet operators to attain minimum maintenance and maximum protection.

Yours very truly,

Roy Nelson

Roy Nelson

RN/GD

Get the facts for yourself on Valvoline Fleet Laboratory Service, which has done such a good job without cost for fleet owners all over the nation. And switch to Valvoline "H P O," first successful Pennsylvania oil for Diesels and heavy duty in all gasoline engines—cleans as it lubricates. Get Valvoline "X-18" All-Season, All-Purpose Gear Lube.

VALVOLINE OIL COMPANY, 580 E. Fifth St., Cincinnati

New York - Chicago - Atlanta - Los Angeles

(Continued from page 201)

(h) Industrial, mining, and construction equipment, other than automobiles or trucks, for the operation of which rubber tires or tubes are essential.

LIST B

The following vehicles shall be eligible for tires or tubes to the extent, and only to the extent provided by Chaper 5 of the Tire Rationing Regulations which defines the rulings regarding retread and new tires of an obsolete type for vehicles eligible under List B.

(a) A passenger car used principally to provide one or more of the following transportation services:

(1) Licensed jitney, taxi, or similar transportation service to the general public;

(2) Transportation of persons to enable them to render construction or mechanical, structural, or highway repair maintenance services;

(3) Transportation of executives, engineers, technicians, and workers to and from, or within, such of the following as are essential to the war effort: power generation or transmission facilities, transportation or communication facilities, or agricultural, extractive, industrial, military or naval establishments;

(4) Transportation on official business of Federal, State, or local government employees engaged in the performance of government functions essential to the public health, safety, or the war effort;

(5) Transportation of produce and supplies to and from the farm if an applicant operating such farm does not own or possess a truck or other practicable means of transportation;

(6) Transportation of traveling salesmen who are engaged in the sale of farm, extractive, or industrial equipment, foods or medical supplies, the distribution of which is essential to the war effort;

(7) Transportation of newspapers for wholesale delivery: *provided*, that a passenger automobile to be eligible under this paragraph must be used exclusively for one or more of the purposes in this subsection (a);

(b) Trucks used for any important purpose not included in List A.

U. S.-CANADA ROUTE TERMS APPROVED

Five years of international negotiations, brought to a head by exigencies of war, finally came to a successful conclusion on Oct. 1, when American motor carriers were permitted to cross the international boundary at Detroit and Port Huron, Mich., and use the "short-cut route to the East" across the Province of Ontario. Mileage savings will run from 106 to 210 miles.

Five routes across the Province have been approved for use by the provincial government. They are as follows:

Route No. 1: *Detroit to Buffalo:* (not ready) Highway No. 3 all the way, via Leamington, Glenheim, Talbotville, St. Thomas, Aylmer, Tillsonburg, Simcoe, Canbara and Dunnville.

Route No. 2: *Detroit to Buffalo:* (not ready) Highway No. 2, via Tilbury and Chatham, to Lambeth. Highway No. 4 to St. Thomas. Highway No. 3 to Buffalo.

Route No. 3: *Detroit to Niagara Falls:* Highway No. 2 all the way to Niagara Falls, via Tilbury, Chatham, Lambeth, London, Ingersoll, Woodstock and Brantford.

Route No. 4: *Port Huron to Niagara Falls:* Highways 7 and 22 to London. Highway No. 2, via Ingersoll, Woodstock and Brantford, to Niagara Falls.

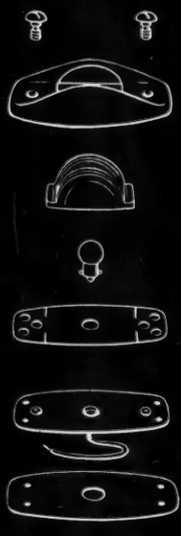
Route No. 5: *Port Huron to Buffalo:* Highways 7 and 22 to London. Highway No. 2 to Ingersoll. Highway No. 19 to Tillsonburg. Highway No. 3, via Simcoe, Canbara and Dunnville, to Buffalo.

Under the Canadian authorization the privilege of using the trans-Ontario highways has been granted only to those carriers that have been certificated by the Interstate Commerce Commission. Provincial authorities have agreed to relax length and weight restrictions to conform with those of Ohio and New York.

Armored ...FOR SAFETY

Designed ...FOR CONVENIENCE

K-D NO. 541 LISTS $1.05



Housing bolts locked in place, cannot drop out.

Sturdy cast housing. Blows glance off!

Fresnel "Lighthouse" type lens, 180° of brilliant illumination.

Standard 2 C.P. bulb gives ample light.

Anchored fiber gasket seals out dust and moisture.

Heavy metal base plate holds bulb socket rigid.

Rubber gasket between lamp and body absorbs shocks.

● K-D reduces the toll of clearance marker lamps with this *Armored* light. Blows glance off its specially designed heavy cast housing. Side swipes, scrapes and backing bumps skid past harmlessly.

K-D builds another important feature into this four-star lamp—when you take it apart to replace bulb or lens, *you won't lose screws or parts*. The housing bolts are locked in place with the same ingenious clip that holds the lens securely. There's much less chance of breakage and no chance at all of having to scramble around in the dark to find lost screws or gaskets.

K-D lights are featured at lighting headquarters, your K-D Jobber. He knows lights and lighting requirements, federal and state laws. He's got the right light for the right job—at the right price.

THE K-D LAMP COMPANY • CINCINNATI, OHIO

K-D LIGHTING

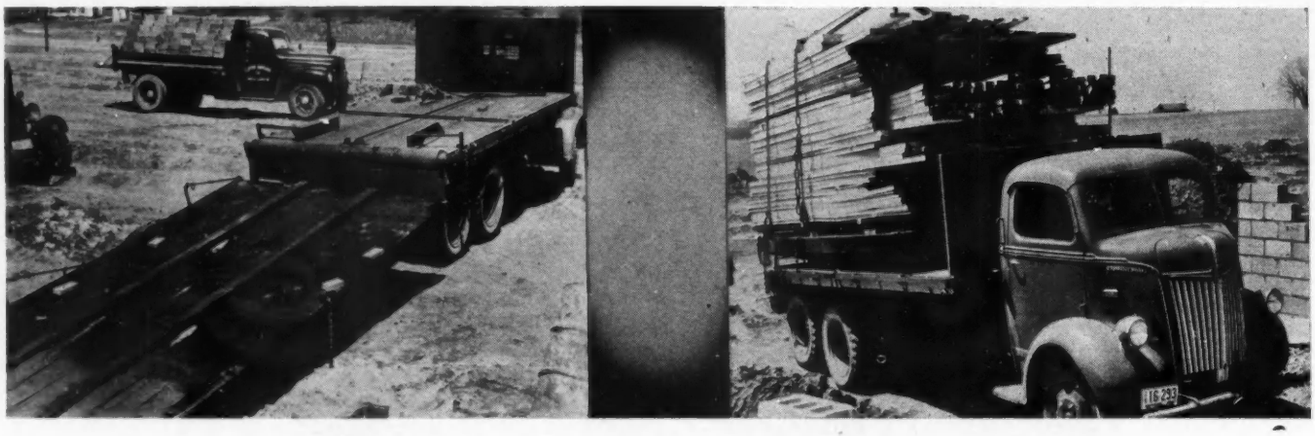
The Right Light for the Right job

Super-Power 3" Plastic Reflector — over ¼ mile visibility. Smack-proof. Exceeds all requirements approved for all military vehicles. Models 333-334 list 65c.

Comb. Clearance and Side Marker—Streamlined. Flat or curved surface models. No. 517 lists $1.10.

Recessed Flush Mounting Lamp—3" semaphore lens. Well gasketed, moisture and dust proof. Model 520 lists $1.05

Combination Stop and Rear Lamp—triflex reflecting lens 3½" diameter. Bulb No. 1158, 2-filament, 6-8 volt. No. 2048, "Delite," lists $2.10.



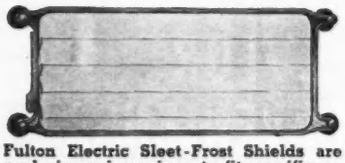
PROMOTING THE WAR EFFORT

... with FULTON SAFETY EQUIPMENT

Motor transportation on *all fronts* must be kept moving with maximum safety and the least possible chance of accidents. Whether here at home, moving essential supplies and equipment, or in the battle areas on northern fronts around the world, trucks, cars, airplanes and small naval craft need the extra safety factor provided by Fulton Electric Sleet-Frost Shields and Fulton rubber-bladed defrosting and ventilating fans.

Clear vision is the first essential to safe driving or safe navigation . . . anywhere, anytime! Thousands of army cars and trucks as well as War Industries fleets, are already equipped with Fulton "clear-vision safety equipment". Many thousands more will come off the production lines equipped to successfully combat the hazards of frost, ice and snow, and moisture condensation on vital glass surfaces.

Time is short. Man power is short. War equipment is practically priceless. Victory for the United Nations hinges partly upon our ability to get more of everything to the places where needed . . . to *keep 'em moving* in the quickest possible way, with the least danger of accidents.



Fulton Electric Sleet-Frost Shields are made in various sizes, to fit specific requirements.

Licensed under U. S. Pat. No. 2,095,223 Canadian Pat. No. 370,548

No. 496 FAN

Universal type curved bracket permits mounting in choice of 4 directions. Ball-and-socket friction joint permits full swiveling, directing air current where needed.

• • •

FULTON ELECTRIC SLEET-FROST SHIELDS AND FULTON RUBBER-BLADED DEFROSTING AND VENTILATING FANS ARE PLAYING VITALLY IMPORTANT ROLES IN THESE OPERATIONS.

THE FULTON CO. 1912 South 82nd Street Milwaukee, Wisconsin

THROW YOUR SCRAP INTO THE FIGHT

Skids Expand Usefulness of A Conversion

A method of rebuilding new and used 1½-ton trucks into big ones is shown in the illustration above of a Truckstell-Thornston converted Ford truck which was further expanded in usefulness by John Dolan, St. Louis Truckstell distributor. This truck has a wheelbase of 180 in. and has four rear 8:25 x 20 tires on four wheels all of which are driven through a Thornton unit.

Specially designed skids, with a full load of lumber, can be loaded on the truck or unloaded in a few minutes, by means of a winch and ingenious rollers. Empty skids are simply slid off the truck to the ground.

Skids can be placed at various stations for loading while other skids with full loads can be delivered and lowered to the ground as a unit to be unloaded by workmen when convenient.

This equipment provides an efficient "shuttle" service that permits handling lumber much faster than with standard equipment. It also avoids demurrage, tying up of railroad cars; conserves manpower and trucks by reducing the number of trucks required to haul a given quantity of lumber.

This practical method of "making big ones out of little ones" is proving its merit in this great national emergency.

Joe Adams Now Vice President

J. E. Adams, general manager of the merchandising division of The Toledo Steel Products Company, was appointed to the office of vice president of the company.

ON GUARD FOR THE DURATION

★ Your HEIL serviceman helps keep your special-body equipment operating efficiently.

With Heil Quality-built Equipment you have a head start in "performance insurance." Every feature of Heil products is designed to provide outstanding service and life. Constant improvements are being made, even today, to prolong the already famed ability of Heil equipment "to take it and ask for more."

We don't have to remind you that such small items of care as oiling and greasing regularly . . . watching your hydraulic equipment closely for tell-tale leaks that indicate a worn fitting . . . noting worn parts and reenforcing or ordering replacement parts in advance to save costly tie-ups later . . . taking advantage of the facilities of your nearest Heil distributor . . . all pay extra dividends in prolonged performance and operating efficiency.

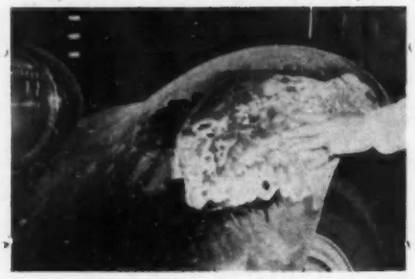
Preventive maintenance is a sound investment, paying you back in "extra hour performance." See your Heil distributor for prompt service and genuine repair parts — he's "on guard for the duration" to protect your investment in Heil Quality-built equipment.

See him, too, on equipment to be mounted on used trucks . . . or completely new units (provided you have the necessary releases). You'll find your Heil distributor anxious to be of assistance to you — take advantage of his facilities soon. BH-66

THE HEIL CO.

GENERAL OFFICES · MILWAUKEE, WISCONSIN

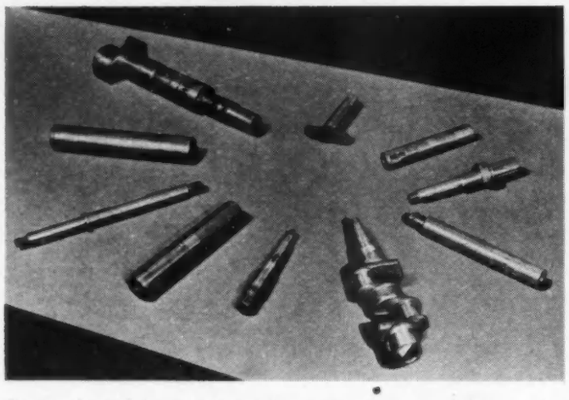
(CONTINUED FROM PAGE 59)



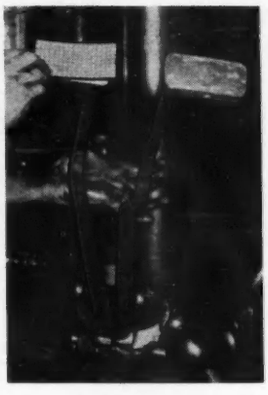
Careful repair of damaged fenders not only keeps vehicles looking neat but also prevents rusting and ultimate replacement. Holes and all bad breaks are welded before refinishing

Welding a layer of special alloy to reface engine valve; face is then ground to size. The fixture, illustrated above, aids operator in depositing metal coating evenly on face

The arrow in the above illustration indicates the area where a bad break was welded on this bell housing. Salvage operations like this undoubtedly will be continued after the war



Parts salvaged by metal spraying worn areas. Among parts shown are steering arm spindle pins, brake cam, emergency brake shafts, air compressor crankshaft and water pump shafts



Where worn parts or materials cannot be used for same purpose, another use may be found. Above, pieces of old brake lining bolted on pedals to replace worn rubber pedal pads

Welding pieces of steel grilles to make one good unit is not difficult but chrome-plated die castings require a short split of copper or bronze to reinforce the welded joint

Short Cuts for Fast Service

Champ-Items No. 407 Oversize and Standard Rear Wheel Studs, for cars and trucks — used when threads are stripped or stud is broken off; or when wheel flange holes and axle flange holes are worn. Made of high tensile strength steel. (See your Jobber for lists of sizes and makes). List price..... 20c to 35c each

Champ-Items No. 949 Self-threading Oversize Drain Plugs for all popular makes of cars and trucks. Here is a real life-saver when drain plug is stripped or lost.

(Pat. No. 2,257,441)

No. 949A—½" Oversize for Chevrolet, Pontiac, Oldsmobile, and GMC truck .....List 30c each

No. 949B—⅝" Oversize for Buick, Hupmobile, and Packard..... List 35c each

No. 949C—11/16" Oversize for Oldsmobile, LaSalle and GMC truck..... List 35c each

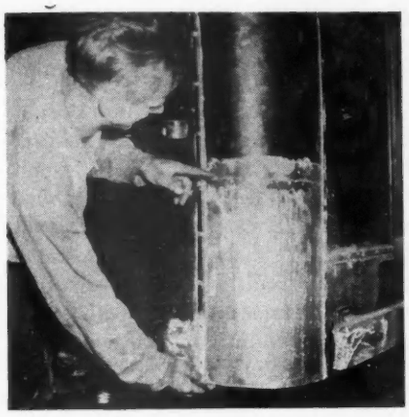
No. 949G—¾" Oversize for Ford, Studebaker, and Cadillac ..... List 35c each

Champ-Items No. 951 Radius Arm and Brake Silencer for Chevrolet knee-action models 1934-38 and Pontiac 1934-36. Eliminates all rattle and prevents further wear by applying constant pressure to arm and brake plate. Can be installed in a few minutes. (U. S. Patent No. 2147178).
List price.....$1.60 per pair

CHAMP-ITEMS, Inc.
6191 MAPLE AVE., ST. LOUIS, MO.

RE-CONDITIONING CHAMP-ITEMS INC. SHORT CUTS

ORDER FROM YOUR JOBBER



Metal salvaged from damaged panel bodies can be used for patching breaks in other bodies. Indicated above is a neat corner patch made from small piece of metal normally discarded

The water pump housing shown in the above illustration would have been thrown away if it could have been replaced easily. Instead, it was quickly welded and returned to service

This is another salvage operation that can be easily handled in any shop by welding. Part of the manifold flange shown in mechanic's right hand will be quickly welded in place

END

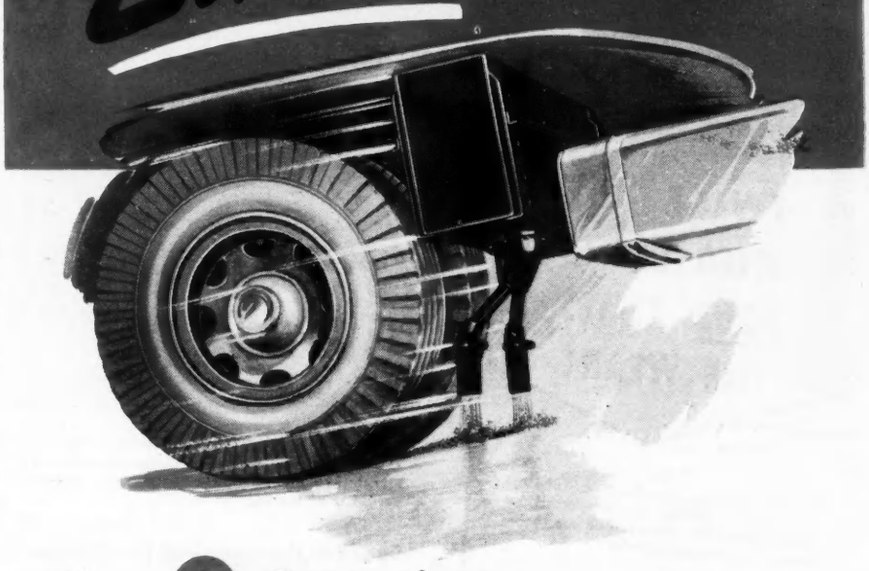
(Please resume your reading on P. 60)

Fred Tanner Now General Manager

Fred C. Tanner, vice president and formerly manager of sales and engineering, has been advanced to the position of General Manager of Federal Products Corporation.

TO *Save* RUBBER AND EQUIPMENT

Use *Lintern* SANDERS



1 Save tires

2 Protect equipment

3 Maintain schedules

4 Prevent accidents

5 Reduce costs

6 Have *good* traction

The New '43 Model Lintern Traction Sander is now ready. Sold and installed by distributors nationwide. Send today for complete information and name of distributor nearest you.

THE LINTERN CORPORATION

58 LINCOLN AVENUE ★ BEREA, OHIO

SLOW DOWN

...don't be a TIRE CHAIN SABOTEUR!

In the "torture pit", above, McKay Chains are tested scientifically under conditions simulating actual road wear, supplementing actual road testing.

In addition to grinding crushing wear, Tire Chains are subjected to the centrifugal road impacts shown below at various speeds.

Miles per Hour	Blow on Chain in pounds
20	16
25	25
30	36
35	49
40	64
50	100
60	144

Speed is the enemy of Tire Chains as well as tires. Tell your drivers to go even slower than "35" for long tire chain wear. Point out the facts in the table at the left. Caution them about excessive wear caused by sudden stops, wheel spinning, abrupt starts and curb grinding!

Also tell them to put chains on carefully, without twists and pulled up tight enough to reduce centrifugal throw to a minimum and yet loose enough to creep on tire.

McKay Chains are Distributed through Jobbers and Manufactured by
THE McKAY COMPANY · PITTSBURGH, PENNA.

REGULAR AND BAR-REINFORCED MULTI-GRIP
McKAY TRUCK CHAINS

Cross-Hauling Curb Studied, Eastman Says

In an address before the Boston Conference on Distribution held at Hotel Statler, Oct. 5, 1942, Joseph B. Eastman, Director of the Office of Defense Transportation, discussed the waste of fuel, rubber and transportation facilities in cross-hauling standard commodities great distances as well as within concentrated areas during war conditions.

"It has been an American principle, and a good one," Eastman said, "to let people compete freely and sell and trade where they will. It is a principle that we all want to preserve—in times of peace. But we are in an all-out war. Undoubtedly this way of doing business increases materially the amount of transportation to be performed. A producer in Boston sells in Chicago. His competitor in Chicago sells in Boston. Their goods cross on the way. That is cross-hauling in its narrow sense. A man in Worcester may buy in Boston or he may buy the same goods in Chicago. In the latter case, the amount of transportation performed is much greater. That is cross-hauling on a broader sense. A more precise term, of course, would be excessive hauling."

He pointed out that a lot of transportation could be saved if trading was confined to the nearest market.

With respect to local cross-hauling conditions, Eastman said: "This matter of cross-hauling cuts across the fields of both railroads and trucks, but let me now touch upon a problem of distribution which relates solely to rubber-borne vehicles. I refer to the local distribution by delivery trucks of milk, oil, beer, bakery goods, newspapers, store purchases and the like. We have grown very prodigal and wasteful in such deliveries and they have been consuming annually a tremendous quantity of rubber. The dire need of eliminating every mile of waste in rubber-borne transportation is perfectly clear. There is no department of that transportation, in all probability, in which there is a greater opportunity for saving than in this local delivery system. The fact is, also, that it has various excrescences which are the product solely of overzealous competition and of which all responsible would be glad to be rid.

ODT NEWS

War Necessity Certificates Mailed to Fleet Operators

Mailing of application blanks for use of commercial motor vehicle operators in applying for Certificates of War Necessity is making rapid progress, the Office of Defense Transportation announced.

Mailing of the application blanks to fleet operators has been completed, and mailing of single unit blanks almost finshed.

Any operator who has been missed in the general mailing should apply at once to his nearest ODT Motor Transport Division field office for Form CWN-4 on which to apply for an application blank. This form must be filled out and returned to the field office from which it was obtained before an application can be sent.

Truck Renters Must Obtain War Necessity Certificates

After Nov. 15, 1942, anyone who leases a commercial motor vehicle from another person "for a period of seven or more consecutive days" (a "lessee") must obtain a Certificate of War Necessity to operate the leased vehicle, the Office of Defense Transportation announced.

A ten-day grace period will be allowed the lessee in which to apply for his Certificate.

The phrase "leased for seven or more consecutive days" is construed by the ODT to include also a combination of separate leases which may be made by a person to cover operations of seven or more consecutive days.

A person who leases a commercial motor vehicle from another under separate leases with short breaks in the period between leases, will also be considered as operating under a lease arrangement of seven or more consecutive days, the ODT said.

Certificates of War Necessity obtained by lessees for vehicles leased will govern the maximum mileage allowed the lessees in their operation but may not be used to obtain gasoline ration coupons from local boards. The owner, or lessor, of the vehicle also is required to have a Certificate after November 15, which will enable the owner to obtain gasoline ration coupons or certificates.

These ration coupons or certificates should be furnished by the owner or lessor to the lessee "to the extent that the lessee furnishes gasoline."

Responsibility for seeing that lessees of vehicles of more than seven consecutive days' duration obtain Certificates of War Necessity will rest with the lessor, the ODT said. The lessee and lessor are jointly responsible for the maintenance of tires and equipment and for seeing to it that the vehicle is submitted for the required periodic inspections.

The Owner's certificate must be kept on the leased vehicle at all times and the lessee must keep the required vehicle records on this Certificate, the ODT said.

ODT Counsel Defines "Parts" in General Order No. 21

Automotive equipment, such as hoists, cranes, winches, tanks, bodies, etc., considered "parts" for the purpose of General Order ODT No. 21, Jack Garrett Scott, general counsel of the Office of Defense Transportation, said in an interpretation issued Oct. 20.

Under the provisions of Order No. 21, no person may purchase, or have installed or mounted upon a commercial motor vehicle, any "part" after Nov. 15, 1942, without having a Certificate of War Necessity for the vehicle on which the part is to be installed or mounted.

The Order is equally binding upon the person who "transfers, mounts, installs or delivers" the part and requires him to see that the purchaser of the part presents a valid Certificate for the vehicle for which the part is intended.

Driver Responsibility Defined Under ODT Order No. 17

In an interpretation of General Order ODT No. 17, Jack Garrett Scott, General Counsel of the Office of Defense Transportation, made it clear that the driver of a commercial motor vehicle, whether also the carrier or merely the employee of the carrier, is bound by the provisions of section 501.68.

This section reads, in part: "No person shall cause to be made by motor truck, and no motor carrier, when operating a motor truck, shall make: (a) Any special delivery, except to hospitals. (b) Any call back. (c) More than one delivery from any one point of origin to any one point of destination during any calendar day."

War Certificates Application May Be Reproduced

Carriers who wish to photostat, or otherwise reproduce, for the purpose of their own record, their applications for Certificates of War Necessity, may do so, the Office of Defense Transportation announced.

Such reproduction should not be allowed to delay the return of the application. The Certificate itself, however, may not be photostated, as it is unlawful to reproduce or alter a Certificate of War Necessity.

Tank Truck Use Defined

Joseph B. Eastman, Director of the Office of Defense Transportation, appealed to owners and operators of tank trucks to restrict their operations generally to the short hauls which they can handle most efficiently and which will further the conservation of tires and other automotive equipment.

Mr. Eastman's statement was intended to clear up what apparently was a misunderstanding among truckers, many of whom believed that the principal purpose of the recently revised ODT Exception Order 7-2 was to divert from rail to highway all shipments of petroleum of between 100 and 200 miles.

Longenecker Succeeds Buhner

Ellis T. Longenecker has been appointed Chief of the Section of Operations, Division of Motor Transport, Office of Defense Transportation, in charge of for-hire carrier operations.

Mr. Longenecker was one of the original supervisors with the Bureau of Motor Carriers, Interstate Commerce Commission, the position he held when joining the ODT staff. Prior to that he was associated for 15 years with the Pacific Freight Lines in Los Angeles, the last seven and a half years as superintendent of operations.

OPA ANSWERS FLEET QUESTIONS ON EXCESS TIRE DISPOSAL

The government, beginning Thursday, October 15, started purchasing from car owners, at ceiling prices, all new or used tires the owners wish to sell. Those possessing excess tires thus may act immediately to qualify for their basic gasoline allowance under the general mileage rationing plan, registration for which starts November 9.

The two principal questions asked by fleet operators concerning the application of the Idle Tire Purchase Plan to their businesses have been answered by the Office of Price Administration as follows:

Q. What about fleets of passenger cars?

A. If you own or lease three or more passenger automobiles and use them principally in the same or related occupations, you are a fleet operator. In order to get gasoline for any passenger car in the fleet, you must sell or give to the Government all your idle passenger type tires. Passenger type tires owned by members of your household may be excluded in determining whether you, as a fleet operator, have idle tires.

Q. Must truck tires be turned in?

A. The gasoline refusal does not apply to idle truck-type tires, or tubes, but the Government will welcome the patriotic action of truck owners who offer idle truck tires or tubes. However, idle passenger type tires must be turned in, even if set aside for use on trucks if the owner applies for a passenger car gas ration.

The method for selling tires to the government has been designed for the utmost simplicity for the car owner. The Defense Supplies Corporation has advanced $150,000,000 for the purpose, and has designated 160 warehouses throughout the country as delivery points. The Railway Express Agency, with 23,000 offices throughout the United States has been designated to collect tires and transport them to the warehouses.

Under the restriction orders now in effect, this is the only market in which consumers with usable excess tires may sell. They cannot sell or give away tires or tubes to other consumers or to dealers. Truck and motorcycle tires and tubes also will be purchased by Defense Supplies Corporation if they are offered, although there is no compulsion of their sale under gasoline rationing.

Battery Trade Prices Frozen

Manufacturers' and wholesalers' electric storage battery prices are subject to OPA price regulation. Effective Nov. 7, ceilings are:

1. For truck and car replacement: One cent per pound of lead content above the sellers' price on Oct. 1, 1941.

2. Other batteries: The sellers' price on Oct. 1, 1941.

David R. Calhoun, Jr., president of Trailer Company of America, addressing several thousand employees at Trailmobile's War Bond Rally in Cincinnati, Ohio. Trailmobile employees are setting aside 10 per cent of their payroll allotment every month for the purchase of War Bonds. Among others present on the platform were company officials and labor leaders.

Samuel S. Evans has been appointed assistant manager of the replacement sales division, of the Wilkening Mfg. Co., Phila., Pa. He has been associated with the company for the past 15 years. His entire business career has been spent in the piston ring industry.

Tom O. Duggan, general manager of the service division of Thompson Products, Inc., Cleveland, has been elected a vice president of the company, Fred C. Crawford, president, announced. The promotion is "in recognition of outstanding creative, merchandising and executive services," Crawford said, and follow a citation for distinguished services by the Thompson directors.

New WPB Division to Set Transportation Priorities

The War Production Board has created a new Division of Stockpiling and Transportation which has authority to advise ODT as to issuance of directives with respect to relative importance of commodities for storage. Dr. W. Y. Elliott, former chief of Stockpile and Shipping Imports Branch will be director of division and A. F. Shafter, who has been chairman of WPB Transportation Committee, becomes director in charge of transportation and storage.

Vague terminology used describes the following objectives: 1. To make determination with respect to transportation needs for movement of commodities and materials essential to war effort; to establish schedules of priorities of movement in transportation of commodities and materials; 3. insure "through appropriate action that essential commodities are imported for consumption and stockpiling"; 4. guide other government departments with respect to most effective use of warehouse facilities; 5. promote safety of stocks of strategic and critical materials in storage.

Tool Sales Restricted to A-9 Priority Rating or Better

Sales and deliveries of hand service tools by manufacturers are limited to purchase orders rated A-9 or higher in an amendment (No. 2) to General Preference Order E-6, issued by the War Production Board.

At the same time, further limitations are placed on the types of alloy steel from which hand service tools may be manufactured. Tools covered by the order include chisels, hammers, industrial hand files, pliers, punches, screwdrivers, snips and wrenches.

In the original order, sales and deliveries of hand service tools by manufacturers on purchase orders rated as low as A-10 were permitted.

Flashlight and Dry Cell Output to Be Controlled

An overall control over production of dry cell batteries and flashlights for civilian use was ordered by the War Production Board.

Production of flashlight batteries will be cut one-half, compared to 1941 output.

. . . . American Freight Lines were skeptical about the TACHOGRAPH *before* they gave it a trial . . . .

--but read what they say NOW!

American
"SHIP BY TRUCK"

AMERICAN FREIGHT LINES
GENERAL OFFICE
322 North Washington Street
Peoria, Illinois
Phone 6129.

August 6, 1942

Wagner Electric Corporation,
2411 South Parkway
Chicago, Illinois

Gentlemen:

In August, 1941 when your representative Mr. R. J. McClary called on us and explained the Tachograph, we will admit that we were rather skeptical about the benefits to be derived from its use. However, at his suggestion we agreed to give one a trial for thirty days.

Before the end of the trial period, we were "sold" on it and we were ready to equip each over-the-road tractor with one.

Since installing Tachographs we have eliminated all lost time due to unnecessary stops on the road and firmly believe that every driver employed by us has become more careful and conscientious about his driving. Naturally, with the reduction in our operating costs, our revenue per ton mile has increased and we believe that much of the credit should go to our Tachographs.

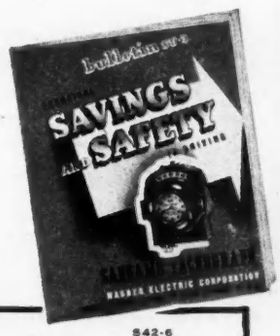
Yours very truly,
AMERICAN FREIGHT LINES
T. R. Klepfer
Owner

- **Agreed to give TACHOGRAPH a trial**
- **Before end of trial period were "sold"**
- **Equipped each tractor with a TACHOGRAPH**
- **Have eliminated all lost time due to unnecessary stops**
- **Drivers now more careful**
- **Operating costs reduced**
- **Revenue per ton mile increased**

Fleet owners who have installed a TACHOGRAPH on each of their trucks are loud in their praise of this recording speedometer. It is not only great for getting drivers to keep speeds under 35 miles per hour, but it has many other advantages. For example, read what the American Freight Lines have to say.

A Tachograph is a recording speedometer. It is mounted on the dash of a truck, and a chart, taken from the instrument at the end of a day, provides daily operating *facts* to guide you in the conservation of tires and vehicles.

Write today for details on this recording speedometer manufactured by Sangamo Electric Company, and distributed exclusively by the Wagner Electric Corporation.



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CCJ

AUTOMOTIVE PARTS DIVISION
Wagner Electric Corporation
6470 Plymouth Ave., St. Louis, Mo., U. S. A.

☐ Please send a copy of "Savings and Safety."
☐ Have your nearest branch call on us regarding the Tachograph.

Name and Position.....
Office or Company.....
Address.....
We operate.....*trucks.*

FLEET MANPOWER INVENTORY ADVISED BY ODT DIRECTOR

American business and industrial firms were advised by Otto S. Beyer, Director of the Division of Transport Personnel of the Office of Defense Transportation, to initiate at once a personnel inventory so as to be better able to meet the tightening labor situation.

Mr. Beyer's recommendation was made in an address to the War Problems Convention of the American Trucking Associations, Inc., at the Hotel New Jefferson, St. Louis, Mo.

Said Mr. Beyer:

"1. Such a personnel inventory should permit a classification of all the employes of the company, according to occupation, sex, age, dependency, and any other factors which would assist in determining the potential Selective Service classification of employes. This classification will permit you to know with fair precision the nature of your immediate Selective Service problem.

"2. This personal inventory should include a record of turnover by occupation, for at least the last three to six months. If you have not made such a record you are going to find out that the problem of replacement due to turnover is several times as great as that occasioned by enlistment or draft. This turnover record should cover separations from your service by occupation and date and cause of separation, and should also include a record of new employes by occupation, date of employment and source from which they were obtained. These two records together will spotlight the occupations in which your replacement problem is greatest, will show you the extent of that problem.

"3. Such an inventory should include a list of the occupations in which women are employed, together with an estimate of the number that can be employed in such occupations, and a listing of occupations suitable for women in which you are now not employing them. The definition of suitability should be in war terms, and not in peace terms. The sole consideration should be whether or not it is possible to obtain women for such occupations and whether they will be able to deliver the goods once employed.

"4. Your inventory should include a list of occupations in which a greater number of men with minor disabilities or a greater number of older men can be employed.

"5. It should include a list of occupations in which the employment of Negroes and other non-whites can be increased.

"6. Your personnel inventory should include an analysis of the training facilities you now have, the number of persons in training and the maximum capacity of these training facilities. An estimate of the training time required for the principal jobs or classes of employment in your company also will be helpful. Finally, let me suggest that you include in your training inventory an 'understanding analysis.' By this I mean that you should make a list of the key positions in your company, and then determine, tentatively, at least, who might be promoted or transferred to fill each of these positions if a vacancy should occur."

Knock Out Rust with

—RUSTBUSTER—

Semi-Permanent Rustproofing for Cooling Systems

Helps keep all the vehicles in your fleet running longer, better, cheaper.

Prevents formation of rust in cooling systems, and removes existing rust and scale — without draining . . . without flushing . . . without labor.

Simply pour in RUSTBUSTER—and leave it. *It does the job.* You just pour, and forget it. RUSTBUSTER cannot harm hose connections, gaskets, water pumps, lacquer or enamel finishes. No harmful fumes. Safe in contact with skin. Will not disturb repairs already made. *Replaces exhausted inhibitors in all types of anti-freeze.*

For complete details—and they are worth having—because they will show you another way to help conserve your trucks—

MAIL THE COUPON NOW!

CANNON CHEMICAL COMPANY, INC.
210 Broadway, Everett, Mass.

Gentlemen:
Please send complete details and free sample of RUSTBUSTER.

NAME..... TITLE.....

COMPANY NAME .....

ADDRESS .....

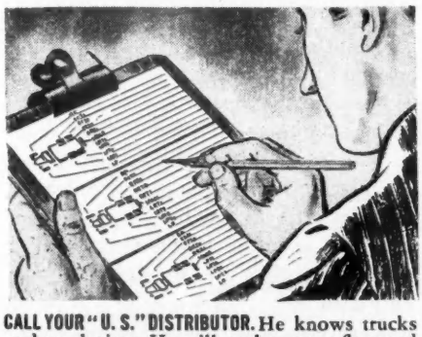
NO. OF CARS.....TRUCKS.....BUSES.....

A TESTED MILEAGE S-T-R-E-T-C-H-E-R

FREE BOOK TELLS HOW to detect *mechanical* defects that waste mileage (front end, brakes, bent axles, etc.); how truck *operating conditions* affect mileage (overloads, speed, etc.); how *tire conditions* affect mileage (inflation, mismatched duals, etc.)—24 pages of facts.

TESTED SYSTEM SAVES by eliminating all guesswork in deciding when to switch tires, when to replace, when to recap. The "U.S." system is based on the same plan that has stretched-the-mileage double and triple for many fleet operators. (See p.14 of the new "U.S." book.)

REGULAR INSPECTION PAYS. A hit or miss plan will not work. Free book tells how to set up a simple inspection routine and then follow it. This is the only sure way of spotting trouble *in time* to make the necessary adjustments and *before* damage is done to the tires.



CALL YOUR "U. S." DISTRIBUTOR. He knows trucks and truck tires. He will analyze your fleet and report to you every condition that has any possible effect on each tire. This detailed "Maintenance Report" will be left as your guide in stretching your tire mileage as far as possible.

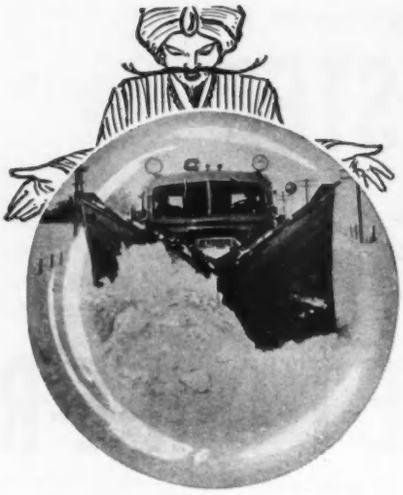
SIGN THIS PLEDGE. This "decal" on the side of a truck cab tells everyone that the driver and the owner have signed the pledge of the "U.S. Truck Conservation Corps" and are doing their part in the Preventive Maintenance Program sponsored by our government.

USE THE RIGHT TIRE. Wartime loads may require a larger size, a different type, a different number of plies to avoid the excessive overloads that ruin so many truck tires. The right tire for all-round service is the "U.S." Royal Fleetway —famous for its long mileage.

SEE YOUR INDEPENDENT "U.S." TRUCK TIRE DISTRIBUTOR

UNITED STATES RUBBER COMPANY

1230 Sixth Avenue • Rockefeller Center • New York



WEATHER FORECAST:
Look for Lots of SNOW This Winter!

Be prepared! Tie-ups by snow are more likely this winter because of lessened traffic and reduced manpower. Avoid delays for your fleet or line with Baker Snow Plows. Built for trucks of 1½ ton up. They make short work of the deepest drifts because they roll instead of push the snow from the highway.

Your customers welcome prompt delivery — especially after a storm. Thousands of Baker Snow Plows are keeping routes open for dairies, bakeries, newspapers, bus companies and others. Maintain top-notch service the way they do. Send for Catalog 829, and for "Snow — Friend of the Enemy," an interesting and well illustrated bulletin on snow clearance.

THE BAKER MFG. CO.
571 Stanford Ave., Springfield, Ill.

BAKER TRUCK & TRACTOR SNOW PLOWS

The KEY NOTE To Gasket Maintenance Problems

Periodic Inspections Require Frequent Gasket Removal

KEY Graphite Paste

But you can *Re-Use gaskets* many times by maintaining and preserving them with Key Graphite Paste—the ideal sealer for leak-proof service against heat and pressure . . . oil and gasoline. Use Key Graphite Paste for new or old cylinder head, manifold and crankcase gaskets . . . on differentials . . . seal carburetor assemblies and gasoline lines with it.

Conservation Is The Keynote to Preventive Maintenance—go all the way by conserving parts made of vital metals. A Key Paste-treated gasket or fitting will give leak-proof service the *first time*—can be removed easily without damage because the compound does not harden or freeze . . . and the same part with a fresh application of Key Paste can be re-used many times.

Save Batteries — Coat battery terminals and connections with Key Graphite Paste, after connecting, to eliminate corrosion.

SEND FOR FREE SAMPLE . . . You can test Key Graphite Paste in actual service at no cost. Write for a liberal FREE sample of this compound—no obligations.

KEY COMPANY
EAST ST. LOUIS, ILL.

2612 McCasland Avenue • • East St. Louis, Illinois

PROCEDURE FOR ODT JOINT ACTION PLANS

(CONTINUED FROM PAGE 198)

would be in violation of the anti-trust laws.

(b) Joint delivery should not be made the excuse for joint selling activities. The merger of delivery service does not require the merger of the facilities which produce or sell the goods, the setting up of joint sales agents, nor the adoption of a single brand name to replace the separate brands formerly sold by business rivals. To extend a program of joint action in these directions is to raise issues under the anti-trust laws which are irrelevant to the central need to conserve rubber. Trades which have been accustomed to use the deliveryman as salesman and collection agent may be under especial temptation to delegate to the drivers of jointly operated trucks the functions of jointly representing concerns in selling as well as delivery. However, other arrangements for sales promotion can be worked out which involve less risk of conspiracy to raise prices; and if such joint selling schemes are adopted and unreasonable restraints upon commerce ensue, the restraints cannot be regarded as a reasonable result of the rubber shortage.

(2) *Diminishing the frequency of delivery service.* Such a program is often practicable only when jointly undertaken, because any competitor who made deliveries more frequently than his competitor would enjoy a substantial advantage which would enable him to divert trade to himself. Where such a restriction of delivery service contains no other feature than a plan to conserve rubber during the emergency by reducing tire mileage, the Department of Justice does not regard it as an unreasonable restraint of trade within the meaning of the anti-trust laws. Care should be taken, however, to avoid making this program a basis for the accomplishment of restraints not logically involved in it.

(a) Specifically, no immunity under the anti-trust laws would be afforded a group which adopted a schedule for delivery deliberately selected to handicap certain competitors by avoiding the times or dates

(TURN TO PAGE 250, PLEASE)

Wartime Truck Maintenance CALLS FOR

KESTER SOLDER

★ Truck conservation is vital to America's war effort! It calls for better maintenance—preventive maintenance—the kind that will keep trucks rolling efficiently until the war is won.

Maintenance calls for Kester Cored Solders, the standard shop material that cuts time and costs, makes permanent repairs, on a hundred and one important jobs.

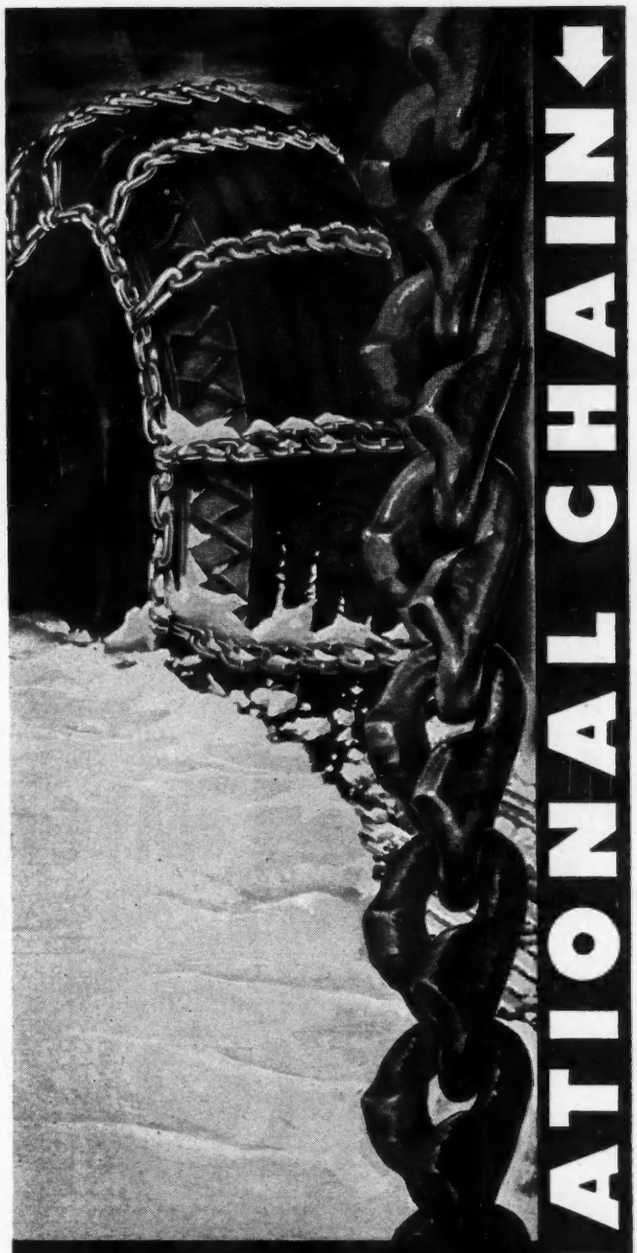
Self-contained flux — the right kind and amount — makes Kester Cored Solders easier to use. Guesswork is eliminated; your men get better results quicker. Once a job is done with Kester, it "stays put" because Kester alloys resist bending, shock, vibration, and the contraction and expansion of temperature extremes.

Standardize on Kester Cored Solders—Kester Acid-Core Solder for general repairs, Kester Radiator Solder to make cooling systems tight, and Kester Rosin-Core Solder for all electrical work. Keep *all three* on hand always.

Order from your wholesaler.

KESTER SOLDER COMPANY
4205 Wrightwood Avenue
Chicago, Illinois
Eastern Plant: Newark, N. J.
Canadian Plant: Brantford, Ont.

KESTER
Cored Solders
FOR EVERY AUTOMOTIVE USE



INTERNATIONAL CHAINS

LOST time — rubber waste — accidents — result from "taking a chance without chains." ★ ★ Campbell Lug-Reinforced Tire Chains give you positive protection. Their exclusive saw-tooth design really "digs in," gives traction "all-ways," lets your units start and stop without dangerous, rubber-consuming skidding and slipping. Campbell's special, molybdenum steel alloy assures much greater chain mileage—much longer chain life. ★ ★ Write for details of this radically different* tire chain. *International Chain & Mfg. Co., York, Pa.*

*U.S. Pat. No. 2,093,547—Canadian Pat. No. 223,568

USING MORE OIL THAN NECESSARY - - IS *SABOTAGE*

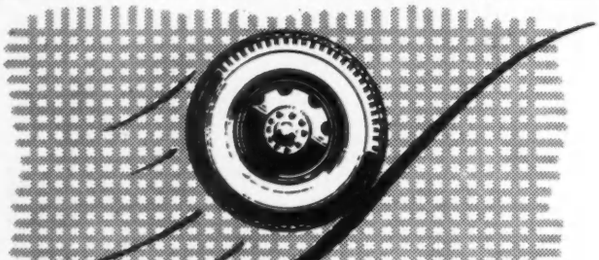
Large operators of trucks report 25 to 50 per cent cuts in oil consumption and many more thousands of miles of service before major engine overhauling—through the use of filters of adequate capacity and correctly designed type.

Oil kept free of dirt, minute metal parts, asphaltenes, gums—retains its lubricating qualities for better lubrication of all moving parts which adds greatly to engine life—reduces need for premature replacement parts.

Slower speeds on the highways may cause greater accumulation of gum and carbon deposits now, and contaminate oil faster if not properly filtered. MICHIANA Filters will help you—they are made in capacities to insure thorough filtering—for all sizes of gasoline and diesel engines. Filters for gasoline engines are described in Bulletin 839—for diesels in Bulletin 42-D.

MICHIANA PRODUCTS CORPORATION
Michigan City, Indiana

MICHIANA
Duo-Flo OIL FILTERS



One sure, easy way to STEP-UP *YOUR TIRE MILEAGE!*

Are you doing all you can to get MORE MILEAGE out of your tires? If so, don't overlook the importance of keeping your garage floors in clean, GREASE-FREE condition. Unless removed, grease and oil deteriorate rubber and shortens its life.

Fleet operators the Nation over have discovered that the EASIEST and QUICKEST way to clean their floors is by using that fast-working material . . .

OAKITE PENETRANT

You, too, will find it speedily removes ALL accumulations, leaving floors clean, bright, new-looking. FREE 36-page booklet gives complete story on this and 21 other jobs. Write for your copy today!

OAKITE PRODUCTS, INC., 26D Thames Street, NEW YORK, N. Y.
Representatives in All Principal Cities of the United States and Canada

OAKITE Specialized **CLEANING**
MATERIALS... METHODS... SERVICE — FOR EVERY CLEANING REQUIREMENT

PROCEDURE FOR ODT JOINT ACTION PLANS

(CONTINUED FROM PAGE 248)

at which these competitors would find it easiest to make deliveries.

(b) Neither would immunity be afforded a group which adopted a delivery schedule deliberately intended to handicap one group of consumers for the benefit of another. The Department would be concerned about the possibilities of abuse in plans which involved discrimination as to delivery service among groups of customers upon the basis of their wealth, past volume of purchases, or similar considerations irrelevant to the question of conserving rubber.

In the development of such programs, the fullest possible consultation with all interested competitors and with consumer groups, insofar as they are organized, in a sincere effort to take account of their needs is a persuasive indication of good faith.

(3) In any program for the conservation of tires, or other scarce materials, whatever the means which may be used, those involved should avoid an effort to use the power they attain by joint action as a basis for an organized attack upon persons who do not participate in the program. The Department would be concerned about the possibilities of abuse in plans which involved any of the following administrative characteristics:

(a) Collective attack upon other groups of retailers who, in good faith, are using different devices to conserve rubber and other scarce materials. It is clear that the reduction in delivery mileage may be achieved by various means, and that the effort to achieve it by joint action should not become an excuse for private groups to coerce their competitors into using only a single method of accomplishing this result or to deny consumers the right to favor whatever method may prove to be most convenient.

(b) Procedures to secure compliance with the conservation program which result in the coercion of a business man by his competitors or in the imposition of penalties upon him by his competitors.

END

(Please resume your reading on P. 82)

Use postage-paid card inserted in this issue for free information on advertised products

COMPONENT PARTS SPECIFICATIONS (CONTINUED FROM PAGE 49)

Line Number	TRUCK MAKE AND MODEL NUMBER	POWER PLANT						RADIATOR MAKE	ELECTRICAL EQUIPMENT				TRANSMISSION LINE			RUNNING GEAR						SPRINGS—MAKE	FRAME—MAKE
		ENGINE Make and Model Number	Governor Make—(If Standard)	Air Cleaner Make (If Standard)	Oil Filter Make (If Standard)	CARBURETOR Make and Model Number	Fuel Feed System Make		Ignition System Make	Generator—Starter Make	Battery—Make	SPARK PLUG Make and Model	CLUTCH Make and Model Number	TRANSMISSION Make and Model Number	UNIVERSALS Make and Model Number	FRONT AXLE Make and Model Number	REAR AXLE Make and Model Number	STEERING GEAR Make and Model Number	Service Brakes Make of Actuation	Hand Brakes Make of Actuation	Brake Drum Make	Wheels—Make		
1	Brockway 78	Con 24B	NS	Uni	NS	Zen 755½	AC	GO	AL	AL	Exi	CH 6 Com-62	B&B 10A6	War T9	Spi 1350	Tim 30000H	Tim 53521H	Ro T14	Wag	War	Tim	Bdd	Eat	Par
2	83	Con 25B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	B&B 11A6	War T9	Spi 1350	Tim 30000H	Tim 53521H	Ro T14	Wag	War	Tim	Bdd	Eat	Par
3	88	Con 25B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	B&B 11A6	War T9	Spi 1350	Tim 30000H	Tim 53307H	Ro T14	Wag	War	Tim	Bdd	Eat	Par
4	92	Con 25B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	B&B 11A6	War T9	Spi 1410	Tim 31000H	Tim 54411H	Ro T21	Wag	T-S	Tim	Bdd	Eat	Par
5	94	Con 25B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	B&B 11A6	War T9	Spi 1410	Tim 31000H	Tim 56411H	Ro T21	Wag	T-S	Tim	Bdd	Eat	Par
6	112	Con 38B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	BL 13 in.	B-L, B-341	Spi 1410	Tim 31000H	Tim 54411H	Ro T21	Wag	T-S	Tim	Bdd	Eat	Par
7	128	Con 38B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	BL 13 in.	B-L, B-341	Spi 1410	Tim 31000H	Tim 56411H	Ro T21	Wag	T-S	Tim	Bdd	Eat	Par
8	146	Con 40B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z35L	Ful 5A330	Spi 1500	Tim 32505H	Tim 56411H	Ro T26	Wag	T-S	Tim	Bdd	Eat	Par
9	147	Con 40B	NS	Uni	NS	Zen 456-2	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z35L	Ful 5A33	Spi 1500	Tim 32505H	Eat A17-17000	Ro T26	Wag	T-S	T-E	Bdd	Eat	Par
10	152	Con 41B	KS	Uni	WGB	Zen 457-2	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z35L	Ful 5A43	Spi 1500	Tim 32505H	Tim 56411H	Ro T26	Wag	T-S	Tim	Bdd	Eat	Par
11	153	Con 41B	KS	Uni	WGB	Zen 457-2	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z35L	Ful 5A43	Spi 1500	Tim 32505H	Tim 58300H	Ro T26	Wag	T-S	Tim	Bdd	Eat	Par
12	154	Con 41B	KS	Uni	WGB	Zen 457-2	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z35L	Ful 5A43	Spi 1500	Tim 32505H	Eat A17-17000	Ro T26	Wag	T-S	T-E	Bdd	Eat	Par
13	156	Con 42B	KS	Uni	WGB	Zen 457-S	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z32S	Ful 5A43	Spi 1500	Tim 32505H	Eat A9-20000	Ro T26	Wag	T-S	T-E	Bdd	Eat	Par
14	162	Con 41B	KS	Uni	WGB	Zen 457-2	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z35-L	Ful 5A43	Spi 1500	Shu 15785B	Tim 58300H	Ro 300	Wag	T-S	S-T	Bdd	Eat	Par
15	166	Con 42B	KS	Uni	WGB	Zen 457-S	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z32S	Ful 5A43	Spi 1500	Shu 15785B	Wis 1337H	Ro 300	Wag	T-S	Sh-W	Bdd	Eat	Par
16	.....170X	Con 33B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 5A82	Spi 1500	Shu 15785B	Wis 72300H	Ro 300	Wag	T-S	Sh-W	Bdd	Eat	Par
17	.....175X	Con 34B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 5A82	Spi 1600	Shu 15785B	Wis 1337H	Ro 320	Wag	T-S	Sh-W	Bdd	Eat	Par
18	.....195X	Con 33B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 5A82	Spi 1500	Shu 15785B	Wis 1337H	Ro 300	Wag	T-S	Sh-W	Bdd	Eat	Par
19	.....220X	Con 34B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 5A62	Spi 1600	Shu 15795B	Wis 1757H	Ro 320	Wag	T-S	Sh-W	Bdd	Eat	Par
20	.....240X	Con 35B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 5A62	Spi 1600	Shu 15785B	Wis 1337H	Ro 320	Wag	T-S	Sh-W	Bdd	Eat	Par
21	.....260X	Con 35B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 4A86	Spi 1600	Shu 15795B	Wis 1757H	Ro 720	Wag	T-S	Sh-W	Bdd	Eat	Par
22	.....260S	Con 35B	KS	Vor	HW	Str SF-4	AC	GO	AL	AL	Exi	CH 6 Com-62	WCL Z31S	Ful 4A86	Spi 1600	Shu 15795B	Wis 1757W	Ro 720	Wes	T-S	Sh-W	Bdd	Eat	Par

GO—G&O Mfg. Co. **KS**—King-Seeley Corp. **Sh-W**—Shuler and Wisconsin **Vor**—Vortex Mfg. Co. **WGB**—W. G. B. Oil Clarifier, Inc.
T-E—Timken and Eaton **Tim**—Timken Detroit Axle Co. **S-T**—Shuler and Timken
For other abbreviations see page 47

WALDEN WORCESTER

HEAVY DUTY SOCKET WRENCHES

You can depend on Walden Worcester tools. Special steels, expert heat treatment, ingenious design, rigid control of all manufacturing processes combine to produce extreme strength and ruggedness.

Heavy duty sockets, wrenches, handles, extensions, adaptors, singly or in sets, available to meet all demands for heavy equipment repair . . . backed by a 36 year old reputation for dependability. Write for catalog.

STEVENS WALDEN, INC.
468 SHREWSBURY STREET
WORCESTER, MASS.

STEVENS TOOLS & BOXES — WALDEN WORCESTER WRENCHES

UNIVERSITY OF MICHIGAN LIBRARIES

WIRY JOE SAYS:

KEEP 'EM ROLLING

√ Check the wire on every job

America's buses, commercial cars and trucks, are a vital part of our transportation system. They *must* be kept running to maintain our supply lines.

But they must *not* be wasteful. They must run efficiently and economically.

Make it a point to check the wire on every job that comes into the shop. Bad wiring makes units inefficient—can cause up to 20% waste of gasoline.

But wire replacements should be made judiciously. Automotive wire and cable is made from strategic war materials — copper, rubber, lacquer. Only wires that have actually gone bad and can not be repaired or shortened should be replaced.

Another hint. Keep wire clean. Wiping off the accumulated dirt and grease occasionally will do wonders in increasing the life of present wiring.

REMEMBER—

√ Check the wire on every job

Wiry Joe

WIRE AND CABLE

PAWTUCKET • RHODE ISLAND

CCJ QUIZ

by ROBERT F. BAHL

(Correct answers on page 260)

This is a "name" quiz. We give you a few clues, and you name the individual referred to. Give yourself a score on this basis—10 points for each correct answer. The passing mark is 70 but see if you can't ring the bell with 100. Correct answers are on page 260.

1.

He was called the "grand old man" of World War I for his work as head of the War Industries Board. In World War II he was named chairman of a special committee to search out ALL the facts on the rubber situation. He completed the whole investigation in 37 days and laid down some hard, fast rules for all tire users to conserve rubber. His name is .....

2.

This fellow ran out of gas on a busy Washington Street . . . quite a predicament for the head of the OPA, which is responsible for the rationing of gasoline. His name is .....

3.

Newspapers revamped their front pages to show a rubber conservation chart when he scribbled this note: "Steve—This is worth putting before the eyes and ears of all car drivers all over the country." His name is .....

4.

Edsel Ford's brother-in-law has been moving up in the War Production Board. He was head of the WPB's automotive branch, then deputy chairman on program progress, and now he has been pushed up to Director General for Operations. In this post he has charge of all industry branches and materials branches. His name is .....

5.

This writer of a syndicated newspaper column has been sounding the horn for the removal of bumpers from all autos and trucks. He wants them turned in for the scrap drive. His name is .....

(TURN TO PAGE 254, PLEASE)

Specify

WGB CLAROFIERS

for Servicing Without Tools

Bottle-tight but dead-easy to open, WGB Clarofiers keep oil amber clear with the minimum of cost and trouble. They're strong, simple, and permanent. No tools are needed to refill. They save wear and replacement of parts.

And Low-Cost Refills

After thousands of miles, the first clouding of the oil simply calls for a new, throw-away, non-metal refill which inserts and removes easily, costs less than an oil change, and takes practically no time. Investigate WGB for lowest upkeep!

This free book describes low-cost oil clarofying for all vehicles, explains its principles and operation, lists the many engines on which WGB is standard. Free on request. Write today.

WGB

OIL CLARIFIER, INC.

KINGSTON, N. Y.

G&O Radiators

27th Year

They're Good

THE G & O MANUFACTURING CO.

NEW HAVEN CONNECTICUT

THIS AND ALL IT STANDS FOR MUST GO

DURO TOOLS ARE DOING THEIR PART IN WIPING OUT THE ENEMIES OF FREEDOM

America's future is in your and our hands. If we fail to provide the tools that are necessary to build and maintain the equipment which is essential to overcome our ruthless enemies, the victory we are fighting for could be lost.
In this all out war, Duro has rolled up its sleeves and is producing the much needed hand tools that are used in the assembly and maintenance of every type of fighting equipment. After victory is attained, Duro-Chrome Tools will be available to all.

DURO METAL PRODUCTS CO.
Dept. CC6 — 2649 N. Kildare Ave., Chicago, Ill.

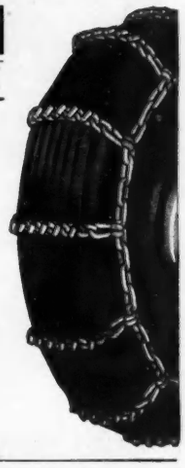
DURO

MANUFACTURERS OF OVER A BILLION ★★★ DURO CHROME TOOLS ★★★

FOR BETTER TIRE CHAIN SERVICE TAYLOR-MADE CHAINS

Keep your Trucks and Cars moving, aid the Nation's Transportation, Conserve Steel, by keeping Tire Chains in repair. Write to S. G. Taylor Chain Co., makers of

• TAYLOR-MADE TIRE CHAINS •



for valuable FREE information on how to protect your chains and keep them service-fit. New bulletin tells how to get more service-miles from present equipment—tells how to make repairs.

Keep your maintenance crews informed—write for this *new manual today*—it shows how to conserve steel by making proper tire chain repairs. You'll find it a valuable and economical help. Write today!

S. G. TAYLOR CHAIN CO. *ESTABLISHED 1873* BOX 509-CC HAMMOND, INDIANA

TODAY, *Tire-Life Histories* ARE IMPORTANT!

The present tire and rubber situation demands that you have an intimate acquaintance with each and every tire in your fleet—its term of service—its place in the fleet—what accidents it has suffered—its cost per mile—etc.

HOW? By the use of an EVERHOT Electric Branding Iron and the EVERHOT Tire Cost System which is free to Everhot users.

EVERHOT Branding Irons have ten digits (0-9) on the disk making possible any combination of numbers desired. Priced at $35.00 f.o.b. Maywood, Illinois.

Write for free literature and sample forms. You cannot afford not to know intimately the Life-Histories of your tires.

Everhot MFG. CO., Maywood, Ill.

Save Tires
BY
REPLACING WORN
BEARINGS WITH

LINK-BELT
ROLLER
BEARINGS

Tires wear longer when wheels are in perfect alignment. Worn front wheel bearings cause trouble—replace them with Link-Belt—the bearing that assures super-smooth action and perfect alignment because of exclusive roller and raceway design. Ideal for Differentials and Rear Axles, too!

Made by the makers of the famous Silverstreak Silent Timing Chain

• • •

LINK-BELT COMPANY
519 N. Holmes Avenue, Indianapolis, Indiana. Warehouses in all principal trading centers 8824

The complete line that completely satisfies

FITZGERALD BULLDOG HIGH COMPRESSION GASKETS

Gasket craftsmen since 1906
The Fitzgerald Mfg. Company
Torrington, Conn.

CCJ QUIZ

(CONTINUED FROM PAGE 252)

6.

From rails to rubber. Newly appointed Rubber Administrator, with authority over the rubber program in all its phases, has had a long career with the Union Pacific Railroad . . . from office boy to president. His name is .....

7.

They call him "hell-on-wheels", because the trucks he builds are just that. He's a veteran of active service with the motor transport of World War I. A pioneer of four-wheel-drive vehicles, his plant has been preparing for World War II for the past nine years. One more clue and that's all. He is president of the SAE. His name is .....

8.

Known as the New Deal's "Donald Duck" for his intemperate statements, also as "the man nobody loves", this man heads the impressively titled Office of the Petroleum Coordinator for National Defense. His name is .....

9.

General Order ODT No. 21, requiring commercial vehicles to carry a Certificate of War Necessity, places virtually all the nation's trucks under the control of the Defense Transportation Director. His name is .....

10.

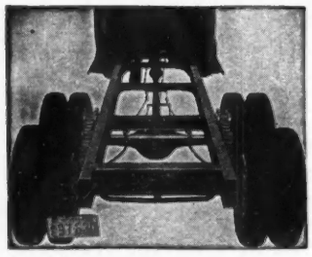
Formerly a paper hanger, this chap is one of three who would be extremely pleased if you would waste gas and rubber, run your trucks to the limit, and forget all about keeping them in condition. His name is .....

Samuels Now Branch Manager

Clawson & Bals, Inc., Chicago, announce that W. R. Samuels has been appointed manager of their branch at Dallas, Texas.

LITTLE GIANT
AUTOMOTIVE TRUCK EQUIPMENT

TEN WHEELERS
for 1½ to 5 Ton Trucks



Greater tonnage . . . more profit. Increase carrying capacity up to 20 tons. Extend frame to any desired length. Load kept in perfect balance . . . no teeter or end-sway. Simple, sturdy, no intricate parts. Timken bearings; steel castings; hydraulic brakes. Easily installed in 3 hours. 3 sizes. *LOW COST.*

ONE OF THE PIONEERS
Also makers Little Giant Frame Extensions, Hand Hoists, Wrecking Cranes.

Write for Circulars, Low Prices

LITTLE GIANT PRODUCTS, INC.
1532 No. Adams Peoria, Illinois

FRINK
SNO-PLOWS
REG. U.S. PAT. OFF.

Both "V" TYPE and ONE WAY BLADE TYPE
hand or power hydraulic control
FOR ALL MOTOR TRUCKS
FROM 1½ to 10 TONS

Write for catalog 38AC and 38BC with discount to truck dealers
CARL H. FRINK, Mfr., CLAYTON, 1000 Isl., N. Y.
DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

"A load behind is a trip ahead"

IMMEDIATE DELIVERY
on Open and Closed Top
TRAILERS
AND CHASSES
National Sales—Kingham—National Service

KINGHAM TRAILER CO.
INCORPORATED
LOUISVILLE, KENTUCKY

AVAILABLE *Standard and Special Built*
TRUCKS, TRACTORS, TRAILERS
BUSES AND CRANE CARRIERS

Chassis are Custom Built to meet any requirements—4 wheelers 2 to 10 tons, 6 wheelers 8 to 20 tons, Trailers all sizes and buses all capacities. Also conventional and C.O.E. crane carriers.

Since 1910
AVAILABLE TRUCK COMPANY
2501 Elston Avenue, CHICAGO, ILLINOIS, U. S. A.

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Repairs Cracked Blocks, Cylinder & Valve Ports in 30 minutes!

Simple, easy to use—no complicated equipment or special training necessary. Quick acting—works in 30 minutes! *Highly Imitated But Never Equalled!*

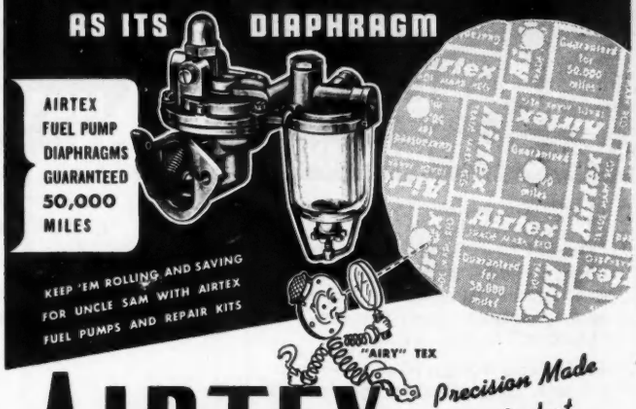
Ask your Jobber—or Send Trial Order. Free Literature on Request.

Stock and Sell the Best Guaranteed Motor Seal

WONDER WELD

MILLER MFG. COMPANY
1100 N. 32nd Street, Camden, N. J.
Warehouses in Principal Cities

A FUEL PUMP IS ONLY AS GOOD AS ITS DIAPHRAGM



AIRTEX

Precision Made for Perfect Performance

Precision Made
FUEL PUMPS

The life of a fuel pump is dependent upon the life and operation of its diaphragm. The diaphragm material must give lasting service under continuous high speed flexing and the diaphragm assembly must be permanently gas-tight. AIRTEX diaphragms more than meet every requirement of efficient fuel pump operation . . . repeated tests prove that they far exceed guaranteed performance.

Ask your Jobber for catalog and dealer deal. Remember . . . your profits climb with the AIRTEX line.

AIRTEX 3-WAY SERVICE

For prompt, profitable service on fuel pumps, do the job the AIRTEX WAY:
1. **Diaphragm Kits for minor repairs.**
2. **Repair Kits for emergency repairs.**
3. **Complete Exchange Service that gives you factory rebuilt pumps with the AIRTEX 50,000 Mile Guaranteed Diaphragm, at a low exchange price.**

Complete stock of new AIRTEX Fuel Pumps still available for all car and truck models.

AIRTEX AUTOMOTIVE CORPORATION — **FAIRFIELD, ILL.**

THE PROPER
BLACK-OUT SWITCHES
by Cole-Hersee

Warning . . .
. . . About Black Out Switches.
Rapidly enacted laws require Public Utilities, State and privately owned vehicles to install Black Out Light Equipment.

Remember . . .
. . . Any old type switch will not do. They must be the proper approved type.

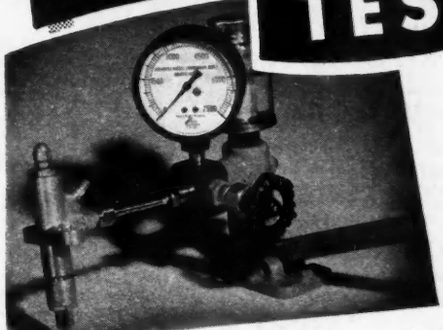
Insist Upon . . .
. . . Cole-Hersee Black Out Switches as Approved by the War Department.

We can fulfill jobber demands for switches, Plugs, Connectors, etc required by Military Vehicles.

Cole-Hersee Company
54 OLD COLONY AVENUE BOSTON, MASS

Adeco **NOZZLE TESTER**

FOR DIESEL ENGINES



STOP THAT SMOKE! Test your diesel nozzles quickly, accurately — with America's most widely used nozzle tester. This sturdy, lightweight, precision-built, low-cost, portable hand test pump can help you avoid costly delays and possible damage to injector tips.

● **Write for illustrated bulletin.**

ADECO

AIRCRAFT AND DIESEL EQUIPMENT CORPORATION
4401 NORTH RAVENSWOOD AVENUE, CHICAGO, ILLINOIS
Manufacturers of Diesel Pumps, Injectors, Nozzles, Nozzle Holders, etc.

DANDUX
APPROVED PRODUCTS

SERVICE records in the nation's leading industries—the use of "Dandux" by leading railroads, industrial and marine organizations—attest the greater value, economy and precision craftsmanship of "Dandux" Canvas Products.

Their extra margin of service—particularly important in these days, is your guarantee of canvas value supremacy! Send for free descriptive folder No. CCJ-3 and full information on your requirements, today.

C.R. DANIELS, INC.
Manufacturers of Everything of Canvas
101 CROSBY ST. • NEW YORK, N.Y.
Newark • Boston • St. Louis • Chicago • Cleveland • Detroit
Milwaukee • Philadelphia • Pittsburgh • Alberton, Md.

★ The Industry's Choice ★
Genuine BOLSER *Hares*
★ FLAGS ★ CLEARANCE LIGHTS
★ REFLECTORS ★ REAR VIEW MIRRORS ★ DIRECTION SIGNALS
★ FUSEES ★ OIL FILTERS AND REPLACEMENT CARTRIDGES.

BOLSER CORPORATION
Cedar Falls, Iowa

THE Decalcomania that is . . .
FIRST in { APPEARANCE / ECONOMY / DURABILITY

***Permalux* "KOLORFILM"**

PERMALUX "KOLORFILM" decals offer greater durability and economy in application and maintenance. Completely synchronous with modern truck finish, they last longer . . . look better!
IT'S MADE OF DuPONT "DULUX"
Write TODAY for details.

THE PERMALUX COMPANY
900-10 West Lake St., Chicago, Ill.

★ **AMALIE** ★
PENNSYLVANIA MOTOR OIL
THE OILIER OIL FOR BETTER LUBRICATION
Daugherty Refinery Division
L. SONNEBORN SONS, INC.
88 Lexington Avenue, New York, N. Y.
Refineries: Petrolia, Pa. • Franklin, Pa.
Plant: Nutley, N. J.

William J. Clark, regional manager of the Division of Motor Transport of the Office of Defense Transportation, presenting U. S. Truck Conservation Corps emblems to be placed on New York City trucks. Photo shows, left to right, Newbold Morris, president of the City Council, affixing an emblem on a fire truck; Lt. Henry J. Herman signing a pledge; William J. Clark, and A. B. Fennell, sales manager of U. S. Tires who presented the emblems on behalf of U. S. Tire dealers.

J. J. Newman, left, vice-president of the B. F. Goodrich Co., Akron, Ohio, inspects an all-reclaim rubber tire on the final finishing line. The company is ready to roll them off the production line for use on civilian automobiles as soon as recommendations of the Baruch Committee are officially put into effect.

PAR
AIR COMPRESSORS
(Write for Catalog "A")
LYNCH MANUFACTURING CORPORATION
Defiance, Ohio, U. S. A.
(Formerly Modern Equipment Corporation)

Here's How You Can Reduce Your Turn Signal Costs . . .
Specify
TELEOPTIC
(one year guaranty)
Signals
THE TELEOPTIC CO.
Racine, Wis.

VALLEY SUPERDUTY CHARGER
Meets 1942 Conditions

Eliminate Run Down Batteries for Low Cost Battery Mileage. The new, improved, Valley-Guaranteed (two years) charger connects to the lighting circuit . . . is easy and economical to operate . . . no moving parts. Now it is easy and inexpensive to obtain long battery life by maintaining efficient battery charge. Model SG-12 charges 1 to 12 6 volt batteries.
NOW ONLY $28.00

Valley
VALLEY ELECTRIC CORP.
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"Oldtyme"
PEDIGREED TOOLS
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CATALOG UPON REQUEST
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QUALITY TOOLS CORPORATION
New Wilmington, Pa.

Sterling
MOTOR TRUCKS HAVE WHAT IT TAKES TO "KEEP ROLLING"

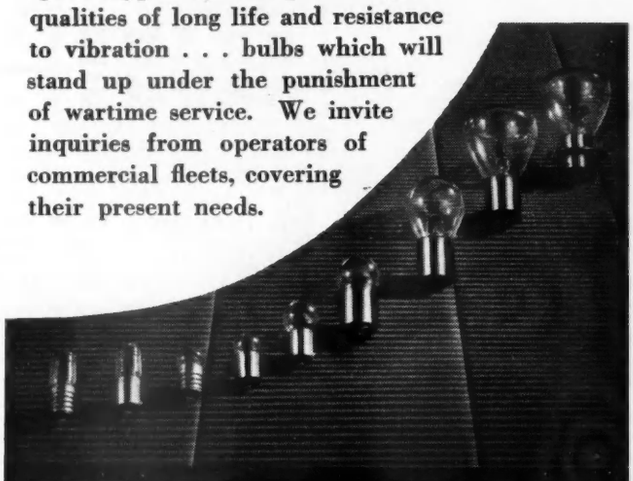
They will continue to do so for you if you adhere to the U. S. Truck Conservation Corps Pledge.

STERLING MOTORS CORPORATION - MILWAUKEE, WIS.
Branches and Dealers in Principal Cities

CARLTON

Miniature Incandescent AUTO LAMP BULBS

Carlton Auto Lamp Bulbs are being used in thousands of army vehicles. Carlton is now producing several special types of bulbs possessing the qualities of long life and resistance to vibration . . . bulbs which will stand up under the punishment of wartime service. We invite inquiries from operators of commercial fleets, covering their present needs.



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NEWARK, NEW JERSEY

Saf-Vue

A CHEMICAL FLUID THAT EXPELS & PREVENTS ICY WINDSHIELD FORMATION

AIR PRESSURE SPRAY APPLICATION
PATENTED IN U. S. AND CANADA

TESTED AND USED BY:

57 Diesel Streamliner Railroad Trains

12 Different States' Highway Department Fleets

Public Utilities
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County Institutions
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Transport Truckers
Ambulances, Taxis

And from

POLE TO POLE

with

Admiral Byrd Antarctic Expedition
The Father Hubbard Arctic Expedition

NON - ALCOHOLIC CORROSIVE **NON** - FLAMMABLE PAINT INJURY

ELIMINATES SLEET, ICE, SNOW PACK **WHILE DRIVING**

SAFETY COSTS SO LITTLE — MEANS SO MUCH

Made Only By

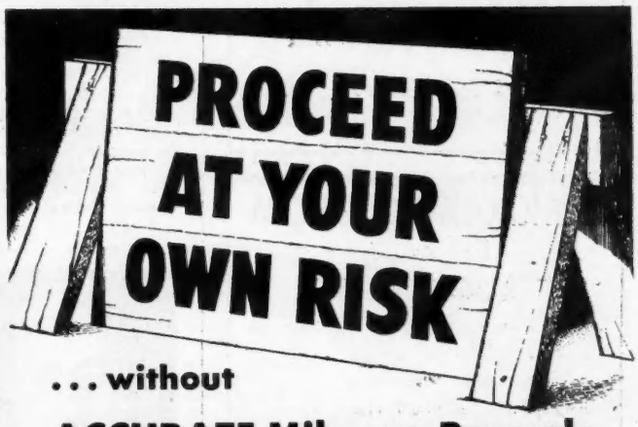
H & G RESEARCH LABORATORIES
SUCCESSOR TO H & G RESEARCH LABORATORIES, INC.
224 DENHAM BLDG., DENVER, COLO.
KANSAS CITY, MO. SALT LAKE CITY, UTAH

Keep 'em Rolling

WITH EFFICIENT DRIVE ACCESSORIES

To keep present equipment rolling, efficient power transmission is vitally important.
Take advantage of Morse Morflex Couplings and Drive Shafts. They reduce friction, wear and cut down maintenance cost . . . require no lubrication—cushion both starting and driving shocks.
Write for data.
MORSE CHAIN CO.
Detroit, Mich., Ithaca, N. Y.
Division of Borg-Warner Corp.
MORFLEX DRIVE SHAFT
MORFLEX

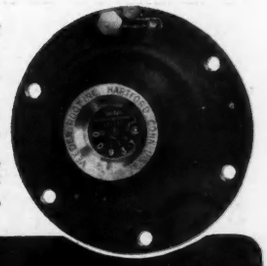
MORSE COUPLINGS and DRIVE SHAFTS



. . . without

ACCURATE Mileage Records

There's no real conservation of gas, oil, tires or repairs unless it's based on complete, exact mileage records. And such records—accurate to the last tenth of a mile of forward *and backward* travel—are supplied by dirt-proofed, tamper-sealed Veeder-Root Hub Odometers. These honest, long-lived instruments can be geared at the factory for any size wheels and tires. Write, stating your preference rating, to: Veeder-Root Inc., Hartford, Conn.



Veeder-Root HUB ODOMETERS

KEX TIRE PLUGS

Metal quill mounted on each plug stem.

Dynamic Hole Stoppers For Punctured Casings. A few CENTS spent now will save DOLLARS and TIRES. More miles per tire is patriotic economy. KEX are more miles convenient to carry for instant use. 3 sizes meet all needs. Automotive Stores and Wholesalers Sell KEX.

The Wedler-Shuford Co., St. Louis, Mo.

OIL-SAVR

PISTON RINGS

The FREE RUNNING Rings with the SAFETY CENTER UNITS

POWER QUICK . . . and IT LASTS!

See your Jobber or write

WAUSAU MOTOR PARTS COMPANY

2400 HARRISON BLVD. WAUSAU, WIS.

HEAVY DUTY MOTOR TRUCKS

AND

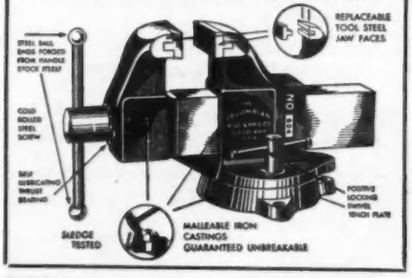
GASOLINE ELECTRIC GENERATING SETS

DUPLEX TRUCK COMPANY

Lansing, Michigan

COLUMBIAN

unbreakable malleable iron machinists' vises—accurate and efficient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SWIVEL
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MALLEABLE IRON CASTINGS GUARANTEED UNBREAKABLE

TRUCK ENGINEERING

TRAILERS

and

BODIES

for all types of service

TRUCK ENGINEERING CORP.

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HICKMAN-BOSTROM

Level-Ride

TRUCK SEATS

- *No more cushion repairs*
- *Cuts driver fatigue*
- *Saves war materials*
- *The engineered ride*
- *Only $17.85*

made exclusively by

BOSTROM MANUFACTURING CO.

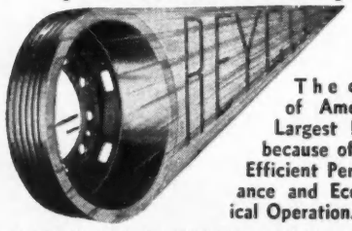
MILWAUKEE, WIS.

T. R. Lippard, president of the Federal Motor Truck Co., Detroit, is shown giving his acceptance speech for the dual award by the Army and Navy of the much coveted "E" pennant for efficiency in production. The Federal plant is devoted in its entirety to the production of four of the biggest sized trucks ever used by our Armed Forces.

Warren K. Lee has been elected to the office of vice-president of the Wilkening Mfg. Co., Phila., Pa. He joined the company in 1932, and has been in charge of sales to the manufacturing or original equipment market. He was formerly with General Motors Corp.

Arthur G. Sullivan has been promoted to the position of general sales manager of the Buffalo Fire Appliance Corp., Buffalo, N. Y. His background of experience covers over 25 years in the fire fighting equipment field, and he is regarded as one of the outstanding authorities on this subject.

BRAKE DRUMS



The choice of America's Largest Fleets because of their Efficient Performance and Economical Operation.

REYNOLDS MANUFACTURING CO.

Springfield, Missouri

THEY'RE TOUGH!

Bowman PLASTIC LENSES

can take it. They easily withstand all ordinary hard usage, bumps and strikes. Economical and efficient—Their red and amber color will not fade and they are not affected by temperature.

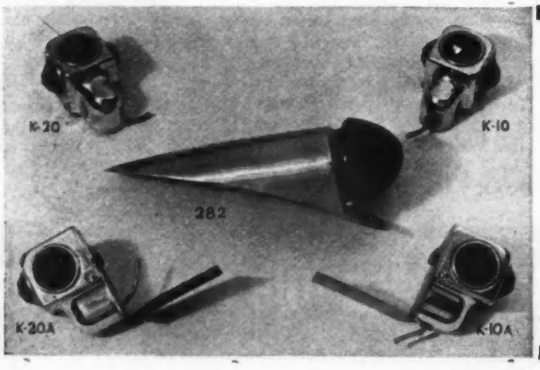
FREE Sample immediately upon request to Fleet Operators and Jobbers.

BOWMAN AUTOMOTIVE PLASTICS CO.

4316 W. 192nd St., Cleveland, Ohio

20,000,000 Passenger Cars, plus Trucks and Busses, must be in capacity service to win this war—we are bending every effort to supply parts and help you.

Wohlert CORPORATION LANSING, MICHIGAN



STREAMLINE YOUR LIGHTING with ROYAL NORTON

Outstanding for buses and commercial vehicles, ROYAL DeLuxe Safety Lamps meet with full approval of the I.C.C. Die cast for solid construction, they are attractively finished in either chrome or enamel. Numbers K-10 and K-20, extremely compact lamps 1½" square x 2½" long; feature brilliant BULL'S EYE Type Lens and are visible for 1000 ft. in 3 directions with a 3 C. P. bulb. Number 282, a waterproof die casting for motor coach or any distinctive vehicle. Can be easily installed, furnished in six colors.

Other ROYAL NORTON Items:

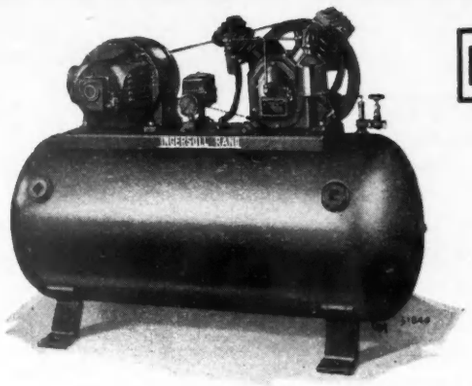
Lighting Fixtures
Warning and Marker Lamps
Pillar and Dome Lamps
Trailer Fixtures
Reflex Signals
Special and Utility Mirrors

Fleet Operators! Write today for Catalog 40

MONROE ACME COMPANY

215 N. Aberdeen Street, CHICAGO, ILLINOIS

YOUR COMPRESSOR *deserves* GOOD CARE



It pays to take care of your Type 30 compressor. If you do, it will give you trouble-free service for many years. Check motor and compressor lubrication regularly and keep the belts properly adjusted. Also don't forget to drain the tank and clean the air filter. Read your instruction book. If you don't have one, our nearest branch office or your jobber will be glad to supply you.

Ingersoll-Rand

3-171 11 Broadway, New York, N.Y.

KEEP 'EM CLEAN

The Modern Way with

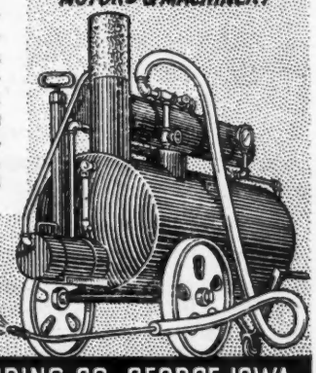
SIEBRING STEAM CLEANER

CLEANS TRACTORS

MOTORS & MACHINERY

REMOVES GREASE and GRIME Almost Instantly!

Autos, trucks, tractors, and heavy machinery of all types are vital equipment today—maintain them at peak performance with the SIEBRING STEAM CLEANER. This modern automatic appliance removes all grease, grime, and dirt in record time. It operates satisfactorily on either fuel oil, natural or artificial gas. Saves time, labor, and money—its low cost will surprise you!



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"I file the copies of COMMERCIAL CAR JOURNAL and frequently refer to copies several months old, in order to brush up on some topic or find the address of one of the advertisers, whose product I need and cannot purchase locally."

—so says a fleet operator in Indiana. He is only one of thousands who use COMMERCIAL CAR JOURNAL as a reference book, and buying guide.

TO KEEP 'EM RUNNING *add this* to the GASOLINE

"Air-Go" Gas Fluid is made exclusively from high grade petroleums, scientifically combined—NOT a chemical. It is harmless to metals in the engine; rather it is a preserver of metal. Tested by thousands of truck and car operators.

Its use will reduce gasoline and oil consumption; reduce friction in engine and reduce metal wear and metal loss; eliminate and prevent sticky and sluggish valves; reduce and eliminate "ping" so prevalent in motors using today's gasolines. And it increases engine power and prolongs motor life.

A Petroleum Product

"Air-Go" Gas Fluid can be used successfully with any grade of gasoline. When added it produces a finer fuel spray into combustion chambers, approaching a true vapor. This results in a more nearly even and complete fuel combustion so necessary for efficient motor operation.

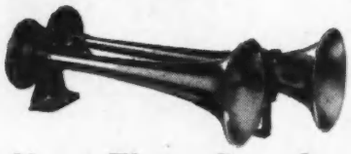
If your jobber doesn't have "Air-Go" Gas Fluid, write

ALLEGANY OIL COMPANY

Chicago, Illinois Oil City, Pennsylvania

AIR-GO GAS FLUID

BUELL AIR HORNS



Keep Them Running L—O—N—G—E—R

Buell High Pressure Air Horns have a powerful, penetrating tone that gets attention and commands respect. They help to Keep 'Em Rolling longer and smoother by eliminating many time wasting stops and starts. Save tires, brakes, clutches and gears. Cut gas and oil consumption.

Write for descriptive chart NOW

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2988 COTTAGE GROVE AVE., CHICAGO, ILL., U.S.A.

FOR BETTER BODIES

The mark SUPERIOR GALVANNEALED identifies the most highly developed zinc coated (heat treated) steel sheet for truck and trailer body construction.

Superior Galvannealed PATENTED PROCESS

THE SUPERIOR SHEET STEEL CO.
CANTON, OHIO

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ELECTRICAL SPECIALISTS FOR 22 YEARS

Manufacturers of
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Battery Chargers
Fast Battery Chargers
Battery Testers

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4340 Duncan Ave. ST. LOUIS, MO.

AUTOPULSE
ELECTRIC FUEL PUMP

- Uninterrupted Schedules
- Instant Starting
- Greater Economy
- No Vapor Lock
- Added Protection

AUTOPULSE CORP., DETROIT MICH.

RELIABLE TRUCK & TRAILER REFRIGERATION

...at lowest first cost, lowest operating cost

The D & G Spray Type Refrigerating Unit uses reliable ice and salt, has clutch release for easy starting, direct cooling by brine spray, no coils or fins to defrost, bronze fitted pump and hosts of other features that contribute to its reliability and freedom from maintenance expense. Write us for full facts.

YES, WE'RE MAKING DELIVERIES NOW!

DROMGOLD and GLENN

1419 McCormick Bldg. Chicago, Ill.

QUIZ ANSWERS

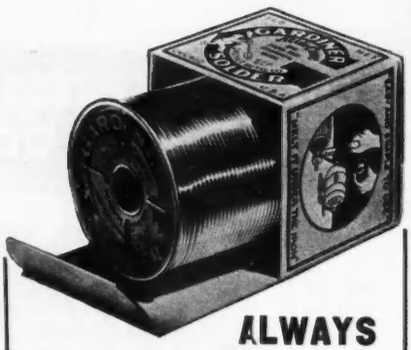
Questions on page 252

1. Bernard M. Baruch. The other members of the 3-man committee were Harvard president James B. Conant and M. I. T. president Karl T. Compton.
2. Leon Henderson.
3. Franklin D. Roosevelt. The note was to his secretary, Steve Early. It was written on an SAE chart showing tire life at various driving speeds.
4. Ernest Kanzler.
5. Westbrook Pegler.
6. William M. Jeffers.
7. Arthur W. Herrington, of Marmon-Herrington, Inc., specialists in strange vehicles for "impossible" off-the-road tasks.
8. Harold L. Ickes.
9. Joseph B. Eastman.
10. Adolph Hitler. The other two are Mussolini and Hirohito.

Speed Limit Increase for Trucks Sought

While everything that rolls on rubber, military vehicles excepted, is now under the 35-mile-an-hour speed limit order of the Office of Defense Transportation, efforts are being made by American Trucking Assn., Inc., to obtain permission for a higher limit for over-the-road carriers to permit greater operating efficiency.

Standard Oil Company of Indiana is cooperating with the government by making one of its tank trucks a roving billboard to promote the sale of War Savings Bonds in Chicago. The truck is painted red, white and blue, with appropriate lettering on the sides and back of the truck.



ALWAYS DEPENDABLE

The quick-acting flux of Gardiner Acid-Core Solder permits exceptionally fast, clean work. Unusually high strength insures lasting bonds. These qualities combine with unvarying dependability to make Gardiner Solder a sound choice for maintenance and repair of motorized equipment for National Defense. Other Gardiner products with a record of dependability that recommends their use on National Defense Equipment are Solid Wire and Bar Solders . . . and Babbitt Metals.

Gardiner METAL CO.

4851 S. Campbell Ave., Chicago, Ill.

For running-in new and rebuilt engines, use auxiliary lubricants containing—

dag COLLOIDAL GRAPHITE

Acheson Colloids Corporation
PORT HURON • MICHIGAN

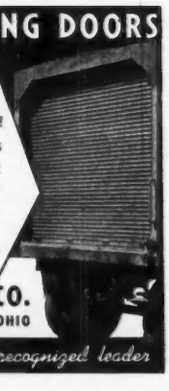
Dart Trucks

HEAVY DUTY FOR OFF THE HIGHWAY SERVICE

— Specially Designed for —
Coal Mining—Iron Ore Mining—Copper Mining—Pit and Quarry—Logging—Oil Fields—Etc.
It Costs No More for Trucks Specially Built to Fit Your Needs. Have Our Engineers Visit and Analyze Your Operation.

DART TRUCK COMPANY
KANSAS CITY, MO.

KINNEAR ROLLING DOORS FOR TRUCKS



Save space! Open upward! Coil out of way. Always safe from wind. Can't joggle open! Less chance of damage to doors. All Metal. Fireproof! Prevent thefts. Write for details.

The KINNEAR MFG. CO.
2100-20 FIELDS AVE., COLUMBUS, OHIO

FOR BUILDINGS — *the recognized leader*